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Original Contributions.

DANGER SIGNALS IN CATAPHORESIS.

By F. F. Fletcher, D.D.S., St Louis, Mo.

Cataphoresis has passed the experimental stage so far as theory is concerned. The electric current *will* carry medicaments through tissue. Sensitive dentin *can* be obtunded and excavated painlessly. Pulps *can* be completely anesthetized and removed without pain.

These are known facts. There are others unknown to most of us, as for instance, in using it for sensitive dentin may we not injure the pulp by too high voltage, or in ways we know nothing of? We must remember that the pulp has not the powers of recuperation possessed by most of the soft tissues. What voltage is necessary to injure tissue?

Some of these machines furnish as high as sixty volts, which some claim will break up cell life and thus destroy tissue. Of course the makers claim this amount of current is to be used only in obtunding pulp for removal, but right here we must recollect that the average dentist is not an electrician, and if he attempts to use the current on sensitive dentin, and the most minute leak is present, the tooth remains unaffected. He turns on more and more until he is using full strength of machine and the tissues surrounding the tooth are being ruined. Then how do you know whether you have a leakage or not?

Will the current as used properly destroy germs, or may not septic matter be carried into parts beyond the tooth?

Some of the accidents mentioned have happened and have been reported. Here is another one of great interest and importance. A dentist in this city made an application of arsenic in the usual manner, and at next sitting attempted to remove pulp, but he found it highly sensitive. To hasten matters he applied cocain with the current and removed the pulp painlessly, but at the next sitting he found the

arsenic had been inducted into tissue beyond the tooth. Here was the devil to pay and no funds. Don't say he should have known better—anyone might have done the same thing thoughtlessly.

Never use cataphoresis in a tooth in which any arsenical compound or other injurious drugs have been placed, as the current will carry them through and cause untold trouble.

If pulps die or accidents happen report them promptly to the journals and thus keep others from like errors. Study up on this subject. Act conservatively and report successes and failures.

PULP TREATMENT—HOW SHALL WE JUDGE BETWEEN SUCCESS AND FAILURE?

By William H. Trueman, D.D.S., Phildelphia.

There can be no error in considering pulp treatment successful that immediately results in the comfortable usefulness of the tooth, a comfortable usefulness that continues through the remainder of the patient's life. On the other hand, treatment that immediately results in discomfort, relieved only by the extraction of the tooth, is, unquestionably, a failure. True as these two propositions undoubtedly are, they are but broad platitudes, and when brought to bear upon any individual case may be thoroughly misleading.

A few years ago I treated a pulp for a gentleman who on his last and final visit was very sick—on the eve, he thought, of a frequently recurring bilious spell that would probably confine him to his house for several weeks, and on that account he strained a point to have the work then completed. The impending sickness proved to be the culmination of a life-long progressive disorder, and in a few days he was dead. In this case the conditions of our first proposition were fully met, but how valueless as evidence of the success or failure of the operation is an instance like this.

On the other hand, many a valuable tooth is lost through a mere accident, an accident that reflects not in the slightest degree upon the operator's skill or judgment, or the method or the means he employs, and that does not in the slightest degree compromise the future comfortable usefulness of the tooth. It may result in an immediate irritation that must run its course, and that either by due process of nature or appropriate remedies would in a short time be relieved, with no probability of a return; the patient, either through pettishness, or moral or physical inability, being unwilling to wait

for this, resorts to extraction. Such a case fully meets our second proposition, but, does it indicate a failure in pulp treatment?

What I desire to get at is this: Have you any reliable standard by which we can compare one method with another; the value of this or that medicament, or this man's method or procedure with the radically differing one of his professional brother, other than our own individual judgments that may, and we know do, at times widely differ?

I wish to know on what grounds my friend loudly proclaimed at the society meeting last Saturday night that the new method or new drug suggested to him the previous Monday evening was a grand success, he having used it ever since—scarcely a week—without a single failure?

I am anxious to ascertain how or in what way we can know in a week's time, or a month's time, or in a year, whether *this* new method is better than *that* old method, or your way better than mine? I am not satisfied to be informed that the method that I have used with, to me, satisfactory results for a score or more years, must be laid aside because, forsooth, it is in conflict with accepted notions of the present day. I want to know before laying aside methods and means I have practiced and studied for many long years, and with which I have become familiar, and that have seemed to give, so far as I can judge, satisfactory results; I want to know how I can ascertain, in a less time than I have practiced the old method, that the new one is enough better to make it worth while to undertake to learn it.

Indeed, before cutting loose from the old method, I want to know —With which one of the new methods shall I supplant it? It is claimed for each that it is a vast improvement on the old, and with equal persistency the advocate of each claims that his pet is vastly better than the others. I want to know how they get at this. What is their standard? How do they know? What do they mean by success? What do they mean by failure?

EUCAIN provokes hyperemia at the point of application, and should be used with reserve when hemorrhage is to be dreaded. In an instance of bladder tumor, Gorl (*Ther. Monats.*) observed abundant hematuria after its use. Five minims of a 10 per cent solution are sufficient to inject into the gum for the painless extraction of teeth. Three to five minims at the root of each tooth is better than a larger dose for a number at once.—*Wolff.*

THE MOUTHS OF OUR SCHOOL-CHILDREN.

By Carl Theodor Gramm, M.D., Chicago. Read Before Tri-State Medical Society at St. Louis, April 7, 1897

I come to you to-day with a plea for your interest in what to the youth of our land is a veritable Pandora's Box. I refer to the universal existence of malformation of the oral structures and their vulnerability, sometimes initiative and sometimes coexisting with constitutional and local disorders, and always conducive to a lowered physical and mental vigor. I claim your interest in this my theme since you, as practicing physicians, enter the sanctum sanctorum of nearly every home and are in a position to be doctors indeed, that is, teachers there of prophylaxis. And prophylaxis with children, applied to physical development and to character formation, means so much to future generations, families and nations.

Why are there so many mouth-breathers in our school-rooms, boys and girls whose nasal secretions have become vitiated, whose unused nasal passages have become clogged with abnormal growths, very much like vacated country lanes grown up to weeds, whose throats and lungs have become congested because of unfiltered and untempered air inhaled, whose chests have become contracted and shoulders stooping, whose physiognomies, once bright and intelligent, have altered, expressing merely weakness and stupidity; in short, whose physical and mental condition are markedly depressed? What is at the bottom of it? Answer—Ignorance or neglect.

Why is it that so large a percentage of our children, school-children, the children who come to our clinics, present features distorted, often due only to untimely, injudicious loss of teeth, deciduous and permanent? Because of ignorance or neglect.

Why in this day of antisepsis should we meet with cases of gastritis innumerable, due to filthy and diseased mouths? Why so much stomatitis, so many cases of alveolar abscesses, vitiating the system of the developing child and leaving an impress upon the general connective tissues often not to be eradicated? Again, the same answer.

The fact is that these conditions could be avoided by timely guidance and advice, and it is a pity that so many human beings are allowed to become disfigured and are subjected to torture when the ounce of prevention might have secured them against future discomfort. This ounce of prevention, this timely counsel, may come most

forcibly and naturally from the physician, for reasons for which I stated at the outset.

Therefore this plea, that the medical profession should interest itself in what has hitherto been a somewhat disregarded field for it. It is only in recent years that oral pathology has been taught in a few medical schools, and even to-day the attendance at these lectures is not compulsory. Trained nurses, as a rule, have no conception how to care for the mouths of those whom they are attending, and the overwhelming majority of mothers are lamentably indifferent and untutored in the care of their children's mouths. One of the principal points of my plea therefore is for the maintenance of a chair or lectureship in every under and post-graduate medical school, teaching this specialty of medicine, which can no longer be relegated to barbers and blacksmiths, a fact due to the magnificent development of dental surgery, brought about by educated, broad and brainy members of the dental profession. These, unfortunately, can serve and educate but a small number of the great public needing instruction in oral hygiene. I plead that every training school for nurses should include the subject in its course. I would plead, furthermore, that teachers in our public schools be instructed to not rest content with having merely hands and faces clean. It ought not to be implied by them that only the exterior, that which shows, must be clean. Without going to extremes, their ethics might be grounded more thoroughly and our children be compelled to come to school with the teeth also cleansed. The mouth is such a common receptacle for all manner of bacteria, and when neglected becomes such an excellent nidus for many that are pathogenic, that cleanliness of it should be enforced wherever it may be.

This brings me to an aside, namely, that the friendly exchange of half-exhausted chewing-gum on the part of children ought to be discouraged, and with it the practice of teachers, almost as bad, of distributing promiscuously to the classes penholders and drawing-pencils which have been handled and mouthed and infected by others the day before. This was the practice in my early youth, and I learn with disgust that all the scientific advancement in practical medicine has not caused this dangerous custom to be banished.

If the medical profession will awaken to the close relationship of oral neglect with general disease, and in accord with stomatologists endeavor to prevent this neglect and the harm arising from it,

cuspids will be allowed to remain as the keystones of the dental art and facial expression. The first molar will remain to develop the lower half of the face, deciduous teeth will completely fulfill their original mission, pus absorption from dental abscesses will be a thing of the past, mouth-breathers will follow Shakespeare's injunction—"Shut your mouth and stretch the nostril wide." Our children will be healthier and happier.

CATAPHORESIS.

By J. O. Ely, D.D.S., Chicago. Read Before Chicago Dental Society, May 4, 1897.

Since the title of this paper was handed in to your committee over a year ago the practice has become a great favorite with a large number of dental writers, and the various methods and details of obtunding sensitive dentin by the process of cataphoresis have been described times without number. For this reason I will not present to you a detailed account of methods of procedure, or quote individual cases from practice, but rather attempt to place before you for your consideration the subject of cataphoresis as it presents itself to me after a year's trials and experiments.

It seems that as early as 1833 the principle of cataphoresis was known and used in France for the introduction of medicaments into soft tissues. The *Lancet* of London notes its application in conjunction with aconite for the same purpose in 1859. In the same year Kempton, of London, used the method to anesthetize the tooth and surrounding tissues for the purpose of extraction. These early experiments seem to have been used in dentistry only to obtain a painless method of extraction.

As far as dentistry was concerned, the method seems to have attracted no great attention and there is little to record concerning it until in 1889 Dr. D. F. McGraw, of Mankato, Minn., now of San Jose, Cal., in a paper read at the twenty-fifth anniversary of the Chicago Dental Society, gave a complete description of his method of obtunding sensitive dentin. His description I quote as follows:—"First apply the rubber-dam, wet a pledget of cotton in a solution of cocain and alcohol, pressing the point of positive electrode into the cotton in the cavity, and the negative electrode, with sponge attachment thoroughly wet, to the cheek, and turn on the current.

Rarely will more than four cells be necessary." This, with unimportant changes, is the method in use to-day by the profession.

Dr. F. C. Weeks, of Minneapolis, read a paper on obtunding sensitive dentin at the same meeting, in which he said, "I have used this method of Dr. McGraw's for obtunding sensitive dentin and demonstrated to my entire satisfaction that the application of cocain and alcohol by electricity does anesthetize the pulp, as I have removed ten pulps, all with little or no pain."

Dr. H. W. Gillett, of Newport, R. I., and Dr. Morton again called the attention of the profession to this method in a paper read before the American Dental Association, Aug. 8, 1895, six years after Dr. McGraw had described it fully before the Chicago Dental Society. To Drs. Gillett and Morton great credit is most certainly due for their work on this practice and their most able presentation of it to the dental profession, but the tendency of recent writings to ignore Dr. McGraw in this matter is most certainly doing a great injustice to a man who, if written records are reliable, first presented cataphoresis to our profession in a practical form.

For sixteen months I have been using the electric current in conjunction with cocain to control the sensitiveness of dentin and for other purposes. The experiments have been of the greatest interest to me, and in the large majority of cases have convinced the patients that the era of painless dentistry was at hand. The electricity used has been obtained from 110 volt Edison current. For the control of the current I constructed first a water rheostat, and later an appliance somewhat similar to that suggested by Dr. Custer, by means of which a shunt current is used.

For some time I have been using the cataphoric outfit, for 110 volt Edison current, manufactured by the Dental Protective Supply Company. It is the most perfect apparatus I have seen. The current is under complete control and the appliance is so simple that a child can operate it with perfect safety. Anyone who has access to a 110 volt Edison current can use it, or it can be operated by a storage battery.

I much prefer an appliance that uses the Edison current, as will be easily understood by those who have used the storage battery and have been subjected to the annoyance of keeping it in order. I do not dread the reversal of the current mentioned by some writers, as I have never found the current reversed during fifteen months of

constant use. The manager of the Edison Company assures me that such an occurrence is extremely improbable, while the danger from a sudden and great increase of current, such as would result from crossed wires, is almost an impossibility, all wires being underground. In operating by this method the rubber-dam should always be applied at commencement of operation. Extreme care should be used in insulating all metals, either clamps or fillings near the cavity to be operated upon, for which purpose I use chloropercha. I am confident that a large number of failures in using cataphoresis are caused by a dissipation of the current through improperly insulated clamps or fillings.

Holding a pledget of cotton in the cavity by means of an insulated instrument held by the hand of the operator is another cause of partial and often complete failure. Frequent shocks by such a method are absolutely unavoidable. Wrapping a No. 31 platinum wire around a pledget of cotton and forcing same tightly into cavity, then holding wire in place by imbedding in a drop of sticky wax on an adjoining tooth or clamp, is a plan I have used for eight months with perfect satisfaction. It prevents all annoyance from shocks caused by moving cotton in cavity or breaking the current. The cotton must be kept completely saturated during the entire time the patient is in the circuit, as the drug acts only on that part of tooth with which it is kept in contact. To be successful we must have perfect insulation and perfect contact. A number of different drugs have been used, but there does not seem to be so great a difference in their effects as some writers are urging.

A twenty per cent solution of hydrochlorate of cocain in water has been most frequently used, but of late I have been more favorably inclined to the use of a twenty per cent solution of hydrochlorate of cocain in electrozone. A solution of cocain in guaiacol failed to give the remarkable results that have been claimed for it. I think there is a very interesting field open here for experiments and I hope before the year has closed that some advance will be made along this line. I now use the solution of cocain and electrozone and find it reliable and satisfactory, making it fresh each day.

On the advantages of cataphoresis as compared with other methods of obtunding sensitive dentin it is hardly necessary to dwell, for while an occasional operator may be found who has developed some special method or process that will in his hands, in an

uncertain proportion of cases give good results; yet in 95 per cent of cases operated upon by cataphoresis I know just what the result will be. I know that within a few moments I can produce absolute insensibility of the dentin, and, if necessary, of the pulp, by prolonging the operation.

The knowledge that no pain is to be inflicted in cutting and drilling a sensitive tooth robs a visit to the dentist's of all its terrors, if not of its annoyances, and the dentist no longer dreads the visits of that class of nervous patients who now make such a drain on his vital powers. Operations that formerly had to be slighted on account of the inability or unwillingness of the patient to endure pain, can now be performed under such favorable conditions that the degree of perfection obtained in each operation is limited only by the skill of the operator.

But is there no danger in the use of this method? I hope there will be a full discussion on this point. Will not hyperesthesia frequently follow this operation? I have seen it in only two cases out of three hundred, and then was not at all certain as to its cause. The malletting on these two teeth seemed as likely to have caused this trouble as the use of cataphoresis.

Some dread the toxological effects of cocain. I have as yet had no indications whatever that the influence of the drug has extended beyond the foramen of the tooth upon which the operation was being performed. Objection is made that the operation is likely to encroach upon the pulp if the dentin is made insensible to pain. I think this objection is well taken, but found that one exposure made in this way was sufficient to correct any desire to see how deeply I could cut.

After a long and thorough trial of the method I know only one disadvantage, and that is the time involved. This is commonly rated as a great drawback, but I think unjustly so. As a rule writers on this subject seem to me to be rather underestimating the time required to obtund the dentin sufficiently to make the operation a success. In very exceptional cases I have been able to perform this operation in five minutes; in very few cases has the time been under ten minutes, and in the majority it has been fifteen or over. As a result of my experiments I am forced to the conclusion that in the present condition, and with our present state of knowledge, fifteen minutes is under rather than over the average time required for pro-

ducing the desired result. Although it apparently requires a long time to properly obtund the tooth, yet it takes a very few minutes to prepare the cavity when the patient feels that the operation is to be painless, so that any dentist can easily arrange his appointments and office so that it will be possible for him to do even more work, rather than less.

As the result of three hundred operations and sixteen months' experience with cataphoresis, I am convinced that in the hands of the careful operator it is one of the greatest blessings ever given to the profession. That it can be applied to 90 per cent of sensitive cavities and that it is successful in 95 per cent of the cases in which it is properly applied. That there is no destruction of the tooth or of pulp tissue. That there is no danger of injury to gum-tissue if it is properly insulated and a high voltage is not used. That fifteen volts is sufficient to produce the required results. That properly performed, the production of partial or complete anesthesia of tooth or pulp should be accomplished without pain or discomfort to patient in any way. That all patients without exception have been more than willing to pay the additional cost when the length of operation was increased by the use of cataphoresis. That it is of great benefit where it is necessary to remove pulps, for by its use the pulp can be extirpated absolutely without pain. That as a result of its use patients loss completely their fear of dental operations. That from our professional life the nervous strain is almost entirely eliminated. That the proper preparation of cavities is no longer prevented by nervous fears or suffering of patients. Lastly, that dread of the operations being removed from the minds of the patients, necessary work is no longer neglected by them, and the teeth will be kept in much better condition than at present.

CARBORUNDUM WHEELS.

By Geo. M. C. Barnard, D.D.S., Ware, Mass.

One of the best and most efficient methods of cutting down a vulcanite plate is by means of a coarse vitrified carborundum wheel run in the laboratory lathe. The wheel will not clog and anyone will be surprised to see how rapidly it cuts. The advantages gained, besides time saved, are that the mechanic has two hands free to hold the plate with, thereby lessening the danger of undue pressure on it, which is liable to crack gum sections.

Care should be taken not to cut too closely to the porcelain, for carborundum has no more mercy on it than it has on the rubber. The wheel should be run dry to give best results. I say a vitrified wheel should be used because it frees itself of all rubber; whereas a wheel put together with shellac or other gum will heat and form a paste that will clog the wheel. Of course the file must be used to file close to the porcelain in and around fine corners, but the wheel will commend itself to anyone who gives it a trial.

MORE THAN ONE-THIRD of the people of this country live in cities and more than half the doctors are there, too.—*Med. Record.*

HAY FEVER.—Eucalyptus oil, 1 ounce; glycerin, 1 ounce; tincture of opium, 2 drams; distilled water, to make 6 ounces. Use with atomizer three times daily.—*Canada Lancet.*

INK FOR WRITING ON GLASS.—Shellac 20 parts, alcohol 150 parts, borax 35 parts, water 250 parts. Water soluble dye sufficient to color. Dissolve the shellac in the alcohol, the borax in the water and pour the shellac solution slowly into that of the borax. Then add the coloring matter, previously dissolved in a little water.—*Am. Micros. Journal.*

AN OLD JAW.—Mr. Horace Farebrother presented a lower jaw, supposed to have belonged to an Anglo-Saxon, about 547 A. D., which had been dug up near Old Sarum. The arches were well developed and the teeth well formed, without the slightest sign of caries. There was evidence of wear from mastication, and the third molars, which were unerupted, were somewhat misplaced.—*Dental Record.*

SOLUTION PERCENTAGES.—A fluid ounce of water weighs 455 grains. The percentage of solutions is based upon this—one grain to each one hundred grains of water. A 1 per cent solution then will be four and fifty-five hundredths of a grain of the drug to the ounce of water. Approximately, that is four and one-half grains. To calculate any given percentage, multiply four and one-half by the desired strength of the solution. Thus, one of 10 per cent will be forty-five grains to the ounce. A 6 per cent aqueous solution will be twenty-six grains to the ounce.—*Ex.*

FILLING OF CHILD'S TEETH NOT URGENT NECESSITY.—While extracting of a tooth in relief of a toothache may be reasonably within the agency of a person with whom a child is temporarily residing apart from its parents to require, and thus obligate the father to pay for, the appellate term of the Supreme Court of New York holds, in Ketchem v. Marsland, Nov. 25, 1896, that such agency does not extend to the employment of a dentist to fill and regulate the position of such a child's teeth, it not being deemed such an urgent necessity as to warrant such a course. However, the court holds the father liable in this case because of his ratification of what was done by not communicating any dissent to the dentist during three years that elapsed after he sent in his bill.—*Jour. Am. Med. Assn.*

Digests.

MOUTH AND THROAT, AND THEIR RESISTANCE TO PATHOGENIC ORGANISMS. Hugenschmidt (*Annales de l'Institut Pasteur*, Oct. 25, 1896) has inquired experimentally into the reason why wounds of, or operations on the buccal cavity are so seldom followed by infective complications. (1) Bactericidal power of the saliva; Petit, Sanarelli, and recently Albert Mills, have affirmed this power. Sanarelli, however, used filtered saliva as a culture medium, which contains only 0.15 per cent organic matter. The author inoculated saliva passed through a filter with cultures of various organisms, and then inoculated gelatine tubes with it directly, and after leaving it at 37 degrees C. for a quarter, one, twenty-four, and forty-eight hours respectively. In other experiments the saliva was previously heated to 60 degrees C.; thirty-seven experiments showed that the bactericidal action of saliva is very questionable, organisms increasing in number rapidly in it. Saliva warmed to 60 degrees C., and thus deprived of the bactericidal principles analogous to those of blood serum, is more fatal to torula and staphylococcus aureus than before, but warmed or not it has no action whatever on sarcinæ, streptococcus, or cholera vibrios. (2) Mechanical action of saliva. Organisms are diluted and swallowed so that the gastric juice destroys many of them. (3) Sulpho-cyanid of potassium was proved in a solution of 0.06 to 0.20 per 1,000 to have no bactericidal power. (4) Phagocytosis and chemiotaxis. (*a*) Experiments with unfiltered saliva: In the mouth and pharynx there is a true lymphatic sac containing crowds of various kinds of phagocytes under the epithelial layer. Leucocytosis here is a physiological act, and migratory cells are constantly passing on to the mucous surface between the epithelial cells. The saliva was proved to possess the property of positive chemiotaxis, which accelerates the accumulation of leucocytes. The clear fluid obtained on the surface of human saliva after standing in test tubes was introduced into capillary tubes closed at one end. The latter were then placed in the peritoneal cavity of guinea-pigs or mice for eight hours, when a plug of leucocytes about 2 mm. long was found in the interior. Saliva which had previously been kept for twenty-four hours in the warm, and which contained more organisms, produced a

longer plug, showing that the attractive power increases with the strength of the culture. Saliva of animals (guinea-pigs and mice) attracts the leucocytes of the same animal. Control tubes containing broth cultures of staphylococcus aureus, which exerts a positive chemiotaxis, and normal saline solution, which exerts none, were also used. Stained cover-glass specimens showed that the leucocytes in the tubes were mostly polynuclear phagocytes. This positive chemiotaxis becomes very marked if there is an open wound in the mouth, the surface being quickly covered with a white layer of leucocytes. These were proved by stained specimens to be able to swallow and destroy different kinds of organisms present in the mouth. Normal saliva does not contain streptococci, but if a guinea-pig's mouth is wounded and a virulent culture inoculated into the saliva, chains of streptococci are found in the leucocytes covering the wound after four hours, and healing is rapid. Thus the resistance of the buccal tissues is due to phagocytosis. (*b*) Experiments with filtered saliva showed that the positive chemiotaxic power is due not to the saliva itself, but to its contained organisms. (5) Other agents in resisting bacterial invasion are the constant normal desquamation of epithelium, which dislodges quantities of microbes, which are then swallowed with the saliva, and the diminution in the number of varieties present by the struggle with the common salivary saprophytes.—*British Medical Journal.*

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A HIGH VOLTAGE CURRENT WILL STOP A THREATENED ALVEOLAR ABSCESS. By William Rollins, Boston. The generator used was described in this journal for October, 1896, when it was recommended to dentists for use in benumbing the dentin. Electricians differ in regard to the voltage, one placing it at fifty-seven thousand, another at two hundred and fifty thousand. The amperage is equally indefinite. When tested before use it ran at a speed of fourteen hundred revolutions, and gave an apparently continuous stream through three-quarters of an inch of air. The patient held the negative terminal in his hand, the positive, covered with cotton, against the most painful place on the palate, which was opposite the apex of the root of the first molar. The feeling of intense cerebral congestion stopped in fifteen minutes; the severe pain in an hour. The gum which beat visibly like a heart became nearly normal. There was no return of the symptoms. In using

high voltage currents the following method will prevent the patient from feeling the least sensation from the strongest current which the generator mentioned will give. In the armature circuit place a switch controlled by one of the feet. Have the current turned on the field. Have the patient hold both terminals in the proper positions. Then start the generator by closing the switch. When the sitting is finished open the switch before the patient drops the terminals.—*International Dental Journal, March, 1897.*

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COMBINATION GOLD PLATE WITH CONTINUOUS-GUM ATTACHMENTS, AND PORCELAIN REMOVABLE BRIDGES. By Emory A. Bryant, D.D.S., Washington, D. C. Among the variety of cases to which the methods I am about to describe are applicable, I shall refer more particularly to the replacement of missing teeth back of the cuspids of the lower maxilla, as in such cases, when substitutes are inserted by the usual methods in vogue, it has been the exception rather than the rule that such dentures have been a success; it matters not what materials were used in their construction, these dentures in the majority of cases were partial, if not complete failures. The plain clasps were added to partial plates to confer upon them greater stability, and sometimes the wearer succeeded, in a way, in getting enough use from them to justify the trouble of retaining them in the mouth before the clasp wore the tooth out to which it was attached. But for the purpose of mastication they are as a rule miserable failures. Following plate-work, bridges were indicated, and these have to a certain extent helped us out, but for perfect satisfaction to both the patient and operator the clasp partial plates herein described will be found to be an improvement which fills a long-felt want. This is especially true where all the teeth are missing back of the cuspids in either jaw.

Bridge-work is popular because of its stability under the force of mastication, and it has been my idea to construct a removable denture which would be as equally firm and solid when in use as the bridge. The method here presented has succeeded beyond my highest hopes. After stability, the questions of materials used in the construction of the work is of next importance. For this purpose I have selected those only that are recognized the world over as the most satisfactory in cleanliness and artistic effect—viz., gold for the base-plate, and continuous-gum for attachment and body of the

teeth. The length of time required for the complete operation is not to be considered, for it depends entirely upon the case; but no matter what the conditions are, it requires more time in manipulation to the proportion of work accomplished than any other operation in dentistry. While the manipulation is simple and apparent at a glance, it is in the details that the time is consumed. Take for illustration the lower case shown. The open-faced crowns are made and fitted upon the two teeth to be used as abutments; an impression is taken with these crowns in place, and the usual methods followed to make a model, die and counter, etc., and the swaging of the base-plate. For this plate I use 18-carat gold, 26 gauge. In order to make the plate sufficiently strong and rigid from cuspid to cuspid, I swage up a second piece of gold of the same thickness and solder it to the plate between these two points.

The plate is then fitted in the mouth as it is to be when finished, care being taken to relieve pressure upon the muscles as for any case. The plate is placed in the mouth with the crowns in position, and the impression taken with Teague's Impression Compound, removing crowns and plate in the impression. Into this fusible metal is run to an amount sufficient to make a good strong model. Plate is now in the position it is to be when in the mouth, and the crowns are upon a base which will not change nor break.

The position of the guides on the crowns and parallel to each other is next marked, the crowns are removed from the cast and the guides soldered on. These guides should be of platinum-iridium wire, about the size of a large common pin; the clasp is fitted to the guides as close to the crowns as possible. The crowns are placed in position on the casts, with the clasps in place, and the brace to which the clasp is to be soldered is so shaped that the part to be soldered to the plate will also be the abutting edge of the porcelain. Wax in place and remove so as not to disturb their position, invest and solder the brace to both the clasp and the plate; replace on the cast and strike up a platinum base-plate about 30 gauge, over that portion of the gold plate back of the brace, using a counter of fusible metal. This should fit perfectly, so that when the porcelain is baked on and it is set home solidly it will bear evenly all around, otherwise the porcelain will be shattered when it is subjected to the strain of mastication. The plate is again placed in the mouth with the crowns in position, and the bite taken—wax

will do; the piece is then replaced on the cast, and the bite run at the same time the cast is attached to the articulator.

The teeth are set up in wax in order to determine where the space is to be located for the attachment of the cylinder and screw-pin. The point where the pin is to be soldered is marked off and a hole drilled, nearly the size of one of the How screw-posts; the hole is then threaded by means of a tap corresponding to the post to be used. The end of the post is screwed in and afterwards soldered to the plate; the other side is treated in the same manner. The pins are cut off a trifle below the occluding teeth; a hole is next drilled in the platinum plate for the pin to go through without touching the sides when the plate is in place on the base-plate. The cylinder of thin platinum is made to fit loosely around the pin, and somewhat enlarged to fit the nut, making a shoulder for the same. This cylinder is fitted to the platinum plate over the hole for the pin, and so closely that it will not require much solder to retain it in place. It is then soldered with pure gold. The plates are next placed in position and the teeth are set up. Continuous-gum teeth are used, and from between two of them sufficient is ground away to form a recess for the platinum cylinder. From this point on the piece is proceeded with in the usual manner for making continuous-gum work.

When the final baking is completed, the two plates are cemented together either with sulfur or chlora-percha, the nuts being screwed down solidly at the same time. The abutment crowns in their respective clasps are next cemented to place in the mouth; at the same time, if possible, the plates should be removed, or at least loosened up before the cement is fully set. When hard, remove the plate and clean away the surplus cement, then replace the plate and tighten up, bending the clasps with pliers until the plate will not move without the application of considerable force to raise it. The patients should then be instructed how to insert and remove the fixture. This they can as a rule master in a few minutes.

My porcelain removable bridges are made in practically the same manner as is the clasp plate; the description of the one virtually covers the other, and therefore needs no special directions. The details in each present themselves as the manipulation progresses, and as none are complicated, I have not undertaken to cover them all—in fact, that is impossible, as each presents them differently.

In making removable bridges by this method, the same judgment must be used as would be required were the case to be a permanent bridge. For the lower I should not advise more than two teeth, or three in the upper, where it is to be a single bridge between the abutments: but where it is to be a clasp plate it makes no difference as to the number of teeth, as the lateral strain is then neutralized by the attachments upon the opposite sides of the mouth. In the lower it is always best to cement the two by a brace-plate. In the upper there is more excuse for neglecting this brace, as the teeth are usually stronger in their surrounding tissues, and better able to withstand lateral strain.

Where the case is to be a bridge anchored at both ends so as to relieve the pressure on the gums, the screw-post and nut should always be used; otherwise, unless the work is heavily braced across the ridge, it would be liable to break. In the plates it is not necessary to use the nut, and the pin may not come through at the grinding-surface if it be so desired; the cylinder being closed at the top and porcelain being fused over it, this would give it the appearance of the porcelain being fused directly upon the gold plate. As patients and dentists do not always remain within reach of each other, and accidents will happen at times, I rather favor the showing of manner of its attachment; then if it should fall to the hands of another to make a repair, it would be apparent at a glance how he should proceed to make the separation. I always instruct my patients in this regard, and though they may forget everything pertaining to it but the fact that the piece is separable, and is separated by first heating it over a flame, the rest is apparent to whomever may have to make the repair.—*Dental Cosmos, March, 1897.*

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CURE FOR DIPHTHERIA, CONSUMPTION, ETC. Not long ago, when diphtheria was raging here, Dr. Geo. F. Reese, a dentist of this city, wrote to the health commissioner and asked him to try the use of his system of using an antiseptic solution, but there was no heed paid to the communication. Dr. Reese declares that the conservatism of old-school methods alone prevents the general use of his system, and the consequent amelioration of most of the ills to which humanity is heir. Dr. Reese's theory, oftentimes put in practice, is to surround the part afflicted with an impregnable wall of death-dealing poison to disease germs, with a result that

nature, ever alert to mend, has an opportunity to readjust and make well. In brief, Dr. Reese contends that by the application of an antiseptic solution, the microbes in the air, which he claims pass through the body and attack diseased or weakened parts, are checked in their disastrous work, and all inflammation due to the irritation of these same minute destructive agents is allayed and pain subdued, while health follows.

The people living in the neighborhood of the little shoe store on Division avenue at the corner of Marcey avenue are talking of the case of a boy. A few days over a month ago Dr. Reese was told by one of his sons that their playmate, Otto Sondtheim, 15 years old, was dying from hasty consumption. The doctor knew the people and he went to see the lad. He found a doctor in attendance, who told him that there was no hope, and that if he could do anything to cure the boy it would be a wonder. The boy had a temperature of 104 and his heart was pumping rapidly, with a gurgle at the fourteenth beat, and there was every symptom of an early dissolution of soul and matter. Dr. Reese began using his antiseptic remedy, he says, and at once the burning fever was checked. Later the boy gained strength and left his bed, and to-day he is in a fair way to ultimate recovery. Dr. Reese was well acquainted with the doctor who attended the boy, and when he went to him he says this doctor said at once: "He has to die, but this is a good chance for you to try your remedy." Later, Dr. Reese says, the doctor expressed great surprise and considerable satisfaction at the outcome of his treatment with the antiseptic solution. The doctor who was attending the boy, and who now prescribes once in a while for him, admitted that Dr. Reese had been treating the boy and that, while he believed the lad would die at one time, he is now much better.

Dr. Reese, in connection with the case, said: "I only wish the world could see the advantages of the theory which I have proved will destroy the disease germs that enfeeble the human frame. I am willing to take any case in any hospital and prove publicly by actual application of the antiseptic solution that I can cure where medicines fail. I will work under a committee of doctors, if necessary, and I will take the most serious kind of case, either pulmonary inflammation, tuberculosis, cancer or like diseases." The doctor says he seeks no reward, but wishes the world to know of the great good his method can do.—*Brooklyn Times, May 4, 1897.*

TWO CASES OF TRIGEMINAL NEURALGIA AND TRISMUS ASSOCIATED WITH LOSS OF TEETH. By J. Sefton Sewill, M.R.C.S., L.R.C.P., L.D.S. Two patients lately under my care have presented some points of interest which it may be worth while to record. Both were suffering from severe facial neuralgia, starting from and radiating about the temporo-maxillary articulation. For the sake of clearness it will be well to consider the general characteristics of both cases. (1) *Deficiency in Number of Teeth.*—Both patients were entirely edentulous as regards the upper jaw, and had but three or four teeth in the incisor region of the lower jaw; of the latter, in one case one, and in the other two, were carious and were extracted by me. I would point out, as an important factor in causation, the absence of grinding teeth in both cases. (2) *The Nature of the Attacks of Pain.*—The pain in both cases was paroxysmal, the patients keeping the mouth closed in order to avoid excitation of pain and spasm. In the patient whose case is first described removal of her artificial teeth had this effect. Attempts at mastication had a like result in Case II, but after wide separation of the jaws, while the patient was anesthetized for the purpose of examination, as recorded later, the symptoms were materially reduced in intensity for some days, occurring only under greatly increased stimulation. (3) *The area of the distribution of the pain* in each case presented marked features of similarity. It was partly local; but radiated over the area supplied by the auriculo-temporal nerve, that is to say, over a skin area including the front of the ear and temple, the point of maximum intensity lying in front of the ear along the upper border of the zygomatic process. In one case the pain appeared to be more extensive, though in a minor degree of severity, as it was clearly described as passing down the alveolar margins of both jaws unilaterally. Attention is called to the fact that branches of the auriculo-temporal nerve supply sensory filaments to the temporo-maxillary articulation. (4) *The Condition of Facial and Spasm Trismus.*—This facial spasm was probably of a reflex irritative character, comparable to that seen in other conditions, as, for instance, in tic douloureux, where twitching of the eyelids becomes a marked symptom. It may be noted that the fifth and seventh cranial nerves are intimately associated; their cerebral origins are in close proximity, and communicating branches pass between the nerves themselves and between their exit from the

skull and their termination, where the intercommunication is extensive. The jaw muscles were thrown into tetanic spasm during the attacks of pain, producing a temporary trismus. (5) *The atrophic condition of the masseters and temporal muscles* was due to disuse in both cases, and was so marked as to produce sinking in of the temporal region. This is no uncommon senile condition. (6) *Injection of the conjunctiva and increase of lachrymation* was noted in both cases on the affected side, and is also probably a reflex condition, due to the same causes as that already described above when referring to facial spasm. (7) *Absence of disease of the temporo-maxillary joint* was ascertained under an anesthetic. (8) *No obvious disease of the teeth*, gums, or alveoli was detected sufficient to account for the symptoms.

CASE I.—A lady of about 60 years of age, looking older, owing probably to her extremely neurotic temperament, was sent to me by Dr. Ferrier. She had suffered for some considerable time—it was impossible to ascertain quite how long—from neuralgia referred generally to the alveolar borders of the jaws, and particularly to the left side of the face and head. On inspection of the mouth it was found that the patient was almost edentulous, having but four remaining teeth, all in the lower jaw, first bicuspids and the cuspids of either side. She was wearing dentures which fitted badly. Further investigation elicited the fact that she never voluntarily withdrew more than one of the plates from the mouth, as shortly after removal of both plates spasm of the facial muscles ensued, and violent neuralgic pains, radiating from the temporo-maxillary joint as a focus, occurred. The upper plate was a complete denture bearing incisor, cuspid, bicuspid and molar teeth; the lower similar in character, but having spaces in lieu of teeth where her own remained. It may be mentioned that the necks—the junction of tooth and gum—of these remaining teeth were highly sensitive to mechanical irritation or changes of temperature; the bicuspids were extensively diseased and required removal. The cuspids were repeatedly dressed with the solid nitrate of silver, this salt having the property of obtunding sensitive dentin. The result was satisfactory. There was no disease of the articulation or jaw other than that confined to the teeth and already described. The treatment to be immediately described in detail was carried out, the result being eminently satisfactory, the troublesome symptoms being

relieved for the space of about two years. A few months ago the patient again came under my observation suffering from a slight relapse. On inquiry and examination it was found that one of her plates had been altered by another practitioner, and this alteration had allowed the jaws to relapse into a condition approximating that in which they were when I first saw her.

CASE II.—The second case was that of an elderly lady sent to me by Dr. Abbott Anderson. She sought his advice some months ago complaining of intense neuralgia, originating in and radiating from the right temporo-maxillary articulation. She was practically edentulous and unable to separate the jaws more than a quarter of an inch without causing severe attacks of neuralgic pain, darting over the whole of the right side of the face and temple, accompanied by spasmodic trismus of the masticatory muscles, injection of the conjunctiva and lachrymation of and from the eye of that side. Various local applications had been tried without more than temporary success, and I saw her in consultation with Dr. Anderson in order that a thorough examination of the mouth might be made and the existence of dental disease, if any, discovered. There was no obvious physical sign of disease in the joint. Nothing likely to cause neuralgia was found within the mouth, but the patient having for the purpose of examination been anesthetized and the jaws somewhat forcibly separated, it was found that for some days subsequently her pain was sensibly relieved. I suggested that the case presented so many points of similarity to that I have already described that we could not do better than treat it similarly. The patient had, when I saw her, in her possession two small plates, one for each jaw, but had not lately worn them, as they were not comfortable. They were small partial dentures, filling gaps in the front part of the mouth only. In this they contrasted strongly with the dentures in the former case. As in the first case, treatment gave immediate relief to the more urgent symptoms. Practically the neuralgia was cured and the patient enabled to perform the movements of mastication without discomfort or fear of sudden spasmodic pain.

Treatment. The principle of treating these and similar cases is the adaptation of well-fitting dentures so adjusted as to keep at all times the jaws as far as possible in their normal relative position by restoring the normal opposition of molar and bicuspid teeth. The chief difficulty, and one met with at the outset of the treatment,

lies in obtaining accurate impressions of the jaws, for in the first case removal of the plates from the mouth set up pain and tonic contractions of the maxillary masticatory muscles; and in the second the patient, in dread of causing onset of pain, would separate the jaws but to a very small extent, while any attempt to take models of the mouth resulted in causing muscular spasm.

Pathology. Loss of grinding teeth, molars and bicuspids, lies at the root of the mischief. Directly consequent upon this loss occur degenerative changes in the masticatory muscles due to inaction; then follows relaxation of ligaments about the joint; the condyle of the jaw, and perhaps the interarticular fibro-cartilage, slips when attempts are made to open the jaws, in this way pressing upon some of the nerve filaments derived from the auriculo-temporal and from the masseteric branch of the inferior maxillary nerves supplying the joint. Indirectly, these nerve filaments are connected with the seventh or facial nerve; the motor nerve of all the muscles of expression to the face. Branches from the auriculo-temporal nerve form one of the principal chains of communication between the fifth and seventh nerves. From the main trunk of the inferior division of the fifth nerve are given off branches to the masticatory muscles and from the ophthalmic division of the same nerve, those supplying the conjunctiva and lachrymal gland. After having been for some time in a state of chronic irritation, the sensory tracts become traversed by exciting stimuli with extreme ease, and consequent discharges of neuralgic pain over the areas supplied by these nerves are frequent and violent.

From the facts which have been mentioned, namely, the conditions which were observed before and after treatment, it may be deduced that the loss of normal relationship existing between the articular surfaces of the temporo-maxillary joint causes in a reflex manner both the paroxysmal pain in the sensory divisions of the fifth nerve and spasm of the muscles of the jaw. Two points favor this hypothesis: First, that the removal of the plates worn by my first patient caused immediate pain, replacement being followed by cessation of symptoms. Second, as already detailed, the relief gained by artificial restoration of the grinding teeth in the second case. I feel more than ever inclined to believe this to be the true explanation, for recently my first case came again under my observation, complaining of slight recurrence of all symptoms described.

Upon questioning her carefully, I found that her dentist in the country had for some reason altered one of her plates, reducing the molar and bicuspid opposition, and allowing the jaws to relapse into a condition approximating that in which they were when I first saw her. I have only to add that six months have elapsed since treatment of the second case without the return of any untoward symptoms.—*British Medical Journal.*

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SOME PECULIARITIES OF THE JAWS. By Dr. L. P. Haskell, Chicago. There is in 95 per cent of the mouths more depression in the region of the left bicuspid than the right. The process is shorter on the left side than on the right, so that if the anterior teeth are arranged close to the gum they will be too short on the left when placed in the mouth. In a majority of mouths the teeth on the left side of the lower jaw in the region of the cuspids are higher and more prominent than on the right. The left side of the lower jaw recedes farther from the median line than on the right.—*Dominion Journal.*

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ELECTRICAL IRRITATION OF FILLINGS. By Dr. A. H. Porter, Philadelphia. Volta's contact force and the chemical are the two rival theories that account for the electricity in a battery. To apply these to dental science, the inference from Volta's proposition is that filling and the tooth produce an electrical tension, and that any fluid existing in a crevice reduces the tension. The generally accepted chemical theory asserts that the fluid is cause of both the tension and release. Hence if Volta's be true and no crevice exist, an anemic tooth is subject to a constant electrical pressure from a filling, which experience proves it will not withstand. Such a force in a stronger tooth will attract a larger blood-supply and build dense dentin. Metallic fillings excite a greater electrical tension than cement. Volta's position is reinforced by the well-known experiment of soldering metals and noting the opposite action of each on an electrified needle.

The Austen Roberts experiment is more recent—certain metals when solid diffuse into each other in time when in contact. Whether any dental author has pointed out the above distinction, the present writer has no knowledge. Dr. Palmer's electro-chemical theory draws attention chiefly to the destructive action of fluids electrically

decomposed. The facts tend to show that positive electricity is nothing but force in matter of high intensity including light, and that negative electricity is nothing but force of low intensity including heat.

Both light and heat excite electro-magnetic vibration. As electricity ceases to be exhibited in a wire, light and heat appear, showing their identity with electricity. Light, like positive electricity, discharges native electricity. X-ray pictures are taken by the (negative) waves (low vibrations) from a kerosene flame, magnets, ordinary anodes and cathodes, as well as Crookes' tubes. The well-known experiment of a coin leaving its picture on a highly polished metal surface without pressure and by mere contact is through the same agency.—*International Dental Journal, March, 1897.*

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INCIDENTS IN OFFICE PRACTICE. By G. V. N. Relyea, L.D.S., Oswego, N.Y. Stratagem at times is as necessary in dentistry as in war. A patient called when the following colloquy ensued: "Some twelve or fourteen years since you filled these front teeth with gold, and they are so nice that I will have nothing but gold in my mouth. My eye tooth is decayed, and if you think it will reach the nerve I will not have it done, but instead will have it extracted. You once killed a nerve for me and it almost killed me."

I examined the tooth and assured her that it was not very bad, it would not reach the nerve. I commenced to excavate, and doing it carefully had it, as I supposed, ready for filling. On close examination, however, I saw the pulp shine through the thin wall and at once abandoned the idea of filling with gold. In my palmy days, when I was ambitious, I would have considered this a grand opportunity for capping. In this case there were potent reasons for not adopting it, and in a future article I will give my experience about capping; when and why—when not and why. To tell her the real condition would have involved objections, explanations, etc. In such a case I retire for deliberation, and in this instance came to the conclusion to ask for time. The gums had been somewhat wounded and I advised her to defer the operation and let the gums heal. Then I applied my devitalizer and covered it securely with a four per cent cocain. In two days I was to see her again. At the next sitting she reported no pain. On examination I found the pulp devitalized and no inflammation. Quietly and without creating any

suspicion I gently removed the pulp almost to the apex, then forced pure wood creosote up and advised a temporary filling, and she could have a gold filling later. When next in the chair I showed her the filling, which was white amalgam, and said why not leave it as it is; it does not show from the outside and will save you several dollars, to which she gladly consented. I then told her about my destroying the nerve, removing it entire, unbeknown to her, and such a blank, disappointed expression you can scarcely imagine. I have written this for the benefit of young operators.—*Dominion Dental Journal, April, 1897.*

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HINT ON EXTRACTING. By E. A. Randall, D.D.S., Truro, N. S. I have often seen an operator's face and shirt front bespattered with blood from extracting teeth, while the patient was under an anesthetic. This is unnecessary. I use nitrous oxid as a general anesthetic. The moment that the inhaler is taken from the face I push a small sponge into the mouth; this prevent roots, which I may drop in mouth, from being drawn back into trachea, and absorbs the blood which would otherwise be swallowed or blown out in operator's face, and does not prevent breathing, as patient breathes through nose.—*Dominion Dental Journal, April, 1897.*

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SOLID GOLD CROWN. By R. E. Sparks, M.D., D.D.S., L.D.S., Kingston, Ont. To make a solid gold crown, stamp cusps of thin soft platina and trim to size. Proceed to articulate. It may be dinged or bent to suit the case. Now melt it full of gold scrap of any desired grade. It will now be found that while the platina has retained the shape of the cusps its color has almost entirely disappeared. If any remains and is likely to be exposed it may be removed in the finishing process.—*Dominion Journal, April, 1897.*

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HINTS ON CATAPHORESIS. By Dr. D.B. McHenry, Aberdeen, Miss. Take a piece of insulated copper wire, No. 18 or 20, remove insulation from each end, take one end of the wire, wrap around the small end of an excavator a sufficient number of times to form a cone, and into this insert the plug of positive pole. Select suitable clamp for the adjoining tooth. Around this clamp wrap the insulated portion of the wire, place in position, and bend the free end of the wire so that it will enter the cavity and act as the electrode. This removes

the necessity of holding the mouth electrode with the hand, and is less liable to break the contact.

To insulate a filling in adjoining tooth from the action of the current, slip a piece of mica down between the teeth. To prevent leakage at the gum margin, warm gutta-percha and crowd it down between the necks of the teeth.

An ever-ready mode of applying the obtundent is to make the electrode out of a long glass drop tube. Remove the rubber nipple, insert into the small end a cotton wick, and into the long end fix a rubber cork. Through the cork insert a wire full length of the tube. Into the tube place the obtundent. The end of the wick will be found always moist and no overflow. To prevent evaporation when not in use cover small end of the tube with rubber nipple.—*Items of Interest, March, 1897.*

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GENERAL ANESTHESIA. By Dennis David Crowley, M.D., Oakland, Cal. Before Stomatological Club, San Francisco, Feb. 2, 1897. In considering the subject of anesthesia I shall take up chloroform and ether briefly. It is well known that we use chloroform and ether for the equal purposes of destroying and preventing pain. So far as the mind is concerned, the patient is unconscious, but not every nerve, though the nerve sense ultimately passes to the brain. To explain what I mean by the patient becoming entirely unconscious of pain and the nerve sensitive in itself, is most easily exemplified by the contraction of the cremastic muscle in the incision of the chord.

Back in the thirteenth century an effort was made to render patients unconscious of pain. In the early part of this century nitrous oxid was introduced, but it was not used to any extent until 1844, when Dr. Horace Wells employed it. The first anesthetic of consequence was discovered by Dr. Morton of Boston, and was used before the medical profession of that city, which was indeed a revelation in the use of anesthetics. Nothing in the medical world before or since has caused such a revolution. Dr. Morton was greatly honored before he died, and more so afterward. Dr. Liston performed the first operation in England, where ether was used. Dr. Simpson of Edinburgh first wrote on chloroform a year later.

As to the practical application of chloroform, let us suppose you intend to administer chloroform to a patient to-morrow. To-day

prescribe a laxative, order a light dinner, and no breakfast for the day of the operation, except milk. If you operate at 11 a. m. the stomach will be empty, and also the intestines. Place patient on the table, loosen the clothes around the neck and waist and proceed to administer the anesthetic. My method of late years is to take a small napkin, turn it into a cone, drop a few drops of chloroform on the apex of cone and administer. There is no rule as to the quantity to use, the constitution and systemic condition of patient being a governing factor. In making the application of chloroform test each case by going slowly—five drops first, then ten drops, but never over twenty drops. Continue the application every fifteen to thirty seconds, with plenty of air. The patient should slowly inhale it until unconscious. It can be administered to old and young, although the old do not take as kindly to it as the young. The amount of chloroform given depends upon the length of the operation; the less given the better. I should advise against giving any anesthetic in a case with phthisis, although in its early stages it is said that chloroform can be administered, but not with the greatest impunity. Another instance of where it should not be used is in case of fatty heart. I would also state that while it may be used where there is epilepsy, I would not advise it.

Before the administration of an anesthetic I recommend the use of whisky in pretty free doses. It can do the patient no harm, and stimulates circulation and antagonizes the depressing effect of the anesthetic on the heart. In the use of any anesthetic there is a condition that supervenes, that is, a slight congestion of the brain, and of the lungs and stomach.

Death takes place under the administration of chloroform from coma, or absence of blood in the brain. When the patient becomes pale stop the use of the anesthetic. I think that one of the causes of coma is uremia. Another cause of death is asphyxia, produced by blood falling into the throat and strangling the patient. I recently had a case in which I operated for stangulated hernia. Several physicians were present. The operation was performed quickly and, as we thought, successfully, not a tablespoonful of blood being lost. In raising the feet to cause the blood to gravitate into the brain, the contents of the stomach regurgitated, filling the trachea, and the patient died on the table. Another cause of death is cardiac paralysis.

When should we use ether, and why not always? I never administer ether to any patient in the beginning of anesthesia where everything else is equal, or at all if I am aware that there is kidney or brain disease. In either case it is not proper to administer ether. In a severe shock administer ether from the first. In kidney disease chloroform first and throughout the operation, but never ether. Again I repeat: In heart disease administer ether, and not chloroform; in brain and kidney diseases, chloroform, not ether. I would say, chloroform can always be administered, except where there is kidney or heart disease, throughout the entire operation. In continued operations, with these exceptions, I advise the use of chloroform. It has been my habit to begin with chloroform and continue the operation with ether. The reason for beginning with chloroform is that if you begin with ether the patient will suffer and strangle more. An instance where you can use ether is where the patient's circulation is poor.

In giving chloroform the pulse sometimes becomes weak and the face pale; in such case give ether as a stimulant. As an anesthetic alone I advise chloroform, except where it is contraindicated. Regarding the safety of these agents, both are safe if properly used. Sometimes the best surgeons are the poorest to administer ether or chloroform.

Before you begin an operation make a few preparations. Have your ether and chloroform present, and two hypodermic syringes. I always keep aromatic spirits of ammonia, digitalis and nitroglycerin tablets handy. Suppose that the patient's pulse is becoming weak, and you are afraid that there is going to be cardiac failure. I inject aromatic spirits of ammonia in the chest or arm. I use 60 drops digitalis, which I inject in another part of the chest or arm; two tablets 1-100 grain each of nitro-glycerin, which I inject into the tissues.

During anesthesia some patients become ugly. Such patients have congestion of the face; they will struggle, and their arms or feet will fly in the air. Is it proper to use force? If the hands are flying put your hand between the hands and face of the patient. Don't take hold. There is a certain consciousness in the patient to resist a great force during this stage. The patient will cease struggling; the weight of the hand will govern the legs, if flying; the less resistance you offer the better. If the patient continues to struggle and

afterwards becomes convulsive, take a pair of forceps and draw the tongue well out of the mouth, and the patient will at once take full inspiration. If you have resorted to all these measures and the patient is still unable to breathe, use artificial respiration. When operating on a patient, and he shows signs of reduced vitality, difficult breathing, etc., by continuing operation you will stimulate him.

In administering ether you cannot permit much air to come in contact with the mouth. In administering ether I use a cone of paper. I make one every time and insert a certain amount of cotton, and then pour in quite a large amount (three or four teaspoonfuls or more) at a time. You should grease the face first for protection, as ether is an irritant to the skin. Ether is a stimulant to the heart when weak; therefore, if patient is suffering from shock, face pale and pulse weak, or a leg mangled, begin with ether, never chloroform. Some advocate administering chloroform always; others ether. My experience has taught me that no man should confine himself to one of these agents; neither should it be asserted that they should not be combined, or one to follow the other.—*Pacific Stomatological Gazette, April, 1897.*

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AMBIDEXTERITY. By Herbert Lake, L.D.S., Mitchell, Ont. Ambidexterity, a term applied when the movements and sensations of the limbs on one side of the body are under equal control and command with those on the opposite side. There seems to be an unwritten and yet unalterable law to the effect that man should use one hand rather than the other as the instrument of his will. That is to say, one of his hands is the active or controlling member in all that he does.

Right-handedness means the right hand is the guiding hand, while in work the left one assists. The union is inseparable. In all work which requires both hands the left does as much work as the right, but only as an assistant, and that involuntarily. The active hand is always nearest the work. The baseball player who bats right-handed holds the bat over his right shoulder and has his right hand next the end with which he hits the ball.

The foregoing may also be said of a left-handed person. There are ideas prevalent as to the cause of the majority of about fifty right-handed persons to one left-handed. Some writers affirm that it is a matter of training; that to the untrained child there is no distinction,

and as the brain develops, the powers of imitation, together with the training of nurse and mother, bring about the result. There is much in this theory. Take a child before the age of training can begin; hold before it a simple toy. Which hand will be reached out to grasp it? As often the one as the other. Further, say for argument's sake that the child is developing left-handedness. Imprison that hand and see if the child will not adopt the usage of the other. Naturally it will, all theories to the contrary. Set free the imprisoned hand and what is the result? In one case which came under the writer's notice, the happy faculty of being ambidextrous.

There are many degrees and shades of right and left-handedness prevalent in adult life. There are many who are ambidextrous naturally—many to certain degrees showing the natural preference for either the one or the other hand, and yet are indifferent even to preferring the alternate use of both hands. They throw a ball right-handed, bat it left-handed, spring into a race from the left foot, but in the running jump may leap from the right foot. The lower limbs are less closely controlled by the will than the upper. Their movements are more often involuntary, though the moment they are in such a position as to change them from their natural bent the brain is at once called in for a decision. Some writers have attempted to prove that the right hand is the one intended by the economy to be the useful hand, and have gone so far as to say that left-handedness is indicative of a lower degree of intelligence. The idea is combatted by all the observations and tests one can bring to bear on the subject.

We know that where there is a choice of two directions of growth or movement in plants or animals without apparent advantage either way, a preference is shown for the one over the other. For example, among the heavenly bodies the planets and their accompanying satellites follow a similar law; all accompany the earth and its moon save the moons of Uranus, which circle their primate an opposite way. The woodbine twines in its own direction, possibly from left to right, but the climbing hop-vines may reverse that and run from right to left. The grain of the rock-elm is always from left to right, but the ironwood of the northern zones grains in the opposite direction. The squirrel will turn to the right as he spirals up a tree, unless there is danger in that direction; but his cousin the chipmunk almost invariably seeks the opposite course. When the question of

moral intelligence is mooted in this connection, what can be said of the coon, who turns neither to right nor left as he shins up out of danger, his heart full of guile and stomach full of stolen property?

Why does man use his right hand more than his left? Can the arrangement of the internal organs be made to account for it? The heart is lying obliquely in the left side. The organs of respiration differ in size and weight. The blood-vessels in the upper part of the body are unsymmetrically arranged. More than one scientist has undertaken to prove this a cause for the action, though it is hard to see that, separate from the brain, any of the organs have aught to do with it. Now, the left side of the brain controls the limbs on the right side, and vice versa. Does anyone venture to say that the left brain is greater in size, weighs heavier, or contains more matter than the right? Popular usage, early training and a predisposition to the right hand accounts for the majority of right-handed persons. It is a fact, however, which cannot be gainsayed, observation has established and tests have proven, that a left-handed person is with that left hand more skillful, more accurate, more steady than is a right-handed one. It is also a fact that a left-handed person is ambidextrous to a greater extent than is a right-handed one. Popular prejudice is against the left hand, and the right is trained to dexterity. Manufacturers of instruments, of utensils, etc., do not allow for left-handedness, and as a result the unfortunates have either to work under a handicap or adapt themselves to the circumstances.

What is the benefit to a dental operator in being ambidextrous? What operations has he to perform in which he would be helped by his ability to use either hand with equal skill? The statement is ventured, and though discussable, is nevertheless made, that instead of being of use ambidexterity would be a hindrance. Time is money to the dentist, and the time lost in selecting instruments, shifting positions, etc., would not suffice to recompense for the advantage gained by the use of the opposite hand. Again, the servant may make a good master, but the master never makes a good servant. The right hand of the operator is the directing, the motive hand. The left is the assistant. A gold filling is in progress. While the right hand is placing the pellets in position and guiding the mallet, the left is adjusting the rubber-dam, managing the saliva pump, holding the mouth-mirror, etc.—a deal busier than the right hand,

ment of the teeth. But to my great regret I was obliged to destroy her hopes and illusions by declaring that an operation of that nature was not practicable. It was a case of osseous exuberance with an exaggerated surface of the alveolar processes, in consequence of which the extremities of the four incisors, especially the middle ones, were separated from the lower incisors by a space of more than two centimeters, so that when the patient closed her mouth not only the incisors, but also a portion of the gum, remained uncovered. This young lady had never known what it was to close her lips, and her profile was monstrous. In order to console her, I told her that the deformity could at least be partially rectified by the removal of the four protruding incisors, and that after cicatrization of the gum, artificial incisors would be placed in their anatomical position. There being no other resource both parents and patient accepted my proposition and begged me to operate at their house.

The following day I went there, having modified my original invention, as a new idea in dentistry had occurred to me in reference to this special case; but I refrained from mentioning the fact to the patient or her family, so as not to create doubts or fears. After having prepared everything for the operation, and obtained narcosis and scrupulous antisepsis, I administered chloroform to the patient and extracted the four incisors; then with a bistouri I detached the entire gingival edge from their respective alveoli, commencing from the left canine to the right; folding back this flap I removed, by means of a small saw, an osteotome and a file, all the external alveolar edge, and also a portion of the internal alveolar edge in the middle. Having with sublimate spray cleansed the part from the slightest detritus or clots of blood, I reapplied the anterior gingival flap; and as towards the center it was slightly exuberant, I cut off the superflous portion and with points of suture fixed it to the palatine flap.

The patient was still sleeping when the operation was finished, but on awakening the first movement was to put her hand to her mouth and to ask for a looking-glass. On seeing for the first time her lips closed and the deformity removed she was seized with a kind of convulsive laughter, caused by surprise and joy; for, in spite of the absence of the four incisors, the face had acquired a presentable appearance. I took my leave, simply prescribing an antiseptic and astringent mouthwash to be used frequently.

but still occupying a minor position. Now, let us change places. The left hand directs the work, and training and practice will insure a degree of success unsuspected, but no amount of will-power, practice or determination will enable the operator to perform with the right hand the work of assistance so admirably and yet involuntarily undertaken by the left. You may make the left hand a successful director, but never will the right occupy a subservient position.

As one who has practiced ambidexterity with the desire to benefit thereby, let me advise leaving it alone. The results are no reward for the time spent.—*Dominion Dental Journal, April, 1897.*

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TO OPEN PULP-CHAMBERS OF TEETH AFFECTED WITH PERICEMENTITIS. By R. E. Sparks, M.D., D.D.S., Kingston, Ont. We often have to open up teeth which are very tender to the touch. The pressure necessary to make a steel drill enter the outer layer of enamel, together with the shocks caused by the revolutions of the flat-sided drill upon the uneven surface of the tooth, causes excruciating pain. To avoid this, grind with a small stone a pit at the point at which you wish to enter the tooth. The drill will then run smoothly and penetrate much more easily. When desiring to open on the palatine surface of the incisors or cuspids, after grinding the pit, take an inverted cone bur, a little larger than the drill intended to be used, and cut into the pit the depth of its diameter. This gives a flat surface for the point of the drill to start into, and avoids the shocks before spoken of. Keep the point of the drill well lubricated with oil of turpentine or glycerin.—*Dominion Dental Journal, April, 1897.*

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RECTIFICATION OF A CASE OF PROGNATHISM OF THE UPPER JAW, ACCOMPANIED BY ANTEVERSION OF THE CORRESPONDING INCISORS. By Dr. Vincenzo Guerini, Naples. In 1894 a lady, aged 28, of Naples, came accompanied by her parents to my study to consult me about a very considerable deformity of the upper jaw. An exceptionally pronounced prognathism and a projection outwards (anteversion) of the four upper incisors disfigured the face of the patient, who waited with great anxiety the result of my examination and my opinion. One of my colleagues had told her that by coming to me she might probably be able to obtain a modification of this disfigurement by the redress-

and in many instances destroy them entirely. Chlorate of potash having been declared a poisonous chemical, it is safer to employ it in the form of tooth-paste; thus the possibility of an accident is excluded. It has been demonstrated that the daily use of potash tooth-paste is the very best prophylactic against caries of the teeth and affections of the tonsils, including diphtheria.—*Notes and Remedies.*

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RESTORATION OF BADLY BROKEN TEETH WITHOUT CROWNING. By S. E. Davenport, D.D.S., M.D.S., New York. Read at Massachusetts Dental Society, June 3, 1896. The above title is intended to express the writer's preference for built-up, patched, banded and riveted natural teeth over the same teeth cut off to or near the gum and crowned. The dental profession, itself a specialty, is being of late subdivided into specialties, of which the most popular one, "crown and bridge-work," is by some unscrupulous men practiced because of its advertising and money-making qualities, and even in the hands of conscientious men is often ridden as a hobby far beyond its value. The writer desires to place himself on record as in favor of both crowns and bridges whenever and wherever the conditions of the mouth and remaining teeth (not the patient's pocket) justify their use; but he desires to emphatically condemn the sacrifice of either whole teeth or parts of teeth for the purpose of crowning or bridging where a more conservative plan is available. It is hoped that this little paper will direct attention to what the writer believes to be a serious fault in the practice of many dentists, due to the great improvement in the methods of crowning and bridging and to the mass of information concerning the same, which is being spread broadcast in the journals.

The impression made upon the mind of the average dentist by all of this is so great that when he is consulted concerning a broken tooth he immediately considers the various methods of crowning, and decides to use one of them, while, if he would give the same amount of thought and ingenuity to the devising of a plan for the preservation of what remains of the tooth and a restoration of the broken portions with some strong material, he would not only give his patient in the majority of cases a more useful organ, but he would not be taking the very last possible step for the preservation of that

The following day I found that everything had proceeded most satisfactorily, and my patient declared that she had not in the least suffered, either during or after the operation, and expressed herself as very grateful. On the fourth day I pronounced her wound healed by first intention and, having removed the sutures, promised that in a month's time I would apply four artificial and perfectly natural-looking incisors. At the expiration of thirty-two days the gums were perfectly firm and in their normal physiological state, as I took the impression of the parts, and three days after the young lady had the satisfaction of smiling and displaying a beautiful, equal and unicolored set of teeth. The necks of the four artificial incisors formed a slight margin at the edge of the gum, and one could have sworn that these teeth were implanted in their respective alveoli.—*Brit. Jour. Dent. Sc., April, 1897.*

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CHLORATE OF POTASH AS AN ANTISEPTIC AND GERMICIDE FOR THE MOUTH. By Dr. Unna. During the past eight years in which I have employed chlorate of potash in this modified form I never had occasion to look for a better cleansing agent for the mouth, tonsils and teeth. Naturally, I fully agree with Miller that the efficacy of this remedy does not solely depend upon its antiseptic value. It is my opinion that it possesses marked tonic properties acting favorably on mercurialized gums and imparting increased circulation. In many other affections of the mouth and tonsils the property of chocolate of potash of favoring secretions is particularly commendable.

To obtain this result the pure chlorate of potash must be used; a small quantity is spread on the tooth brush, applied to the teeth and gums and rubbed to a paste. After rinsing the mouth with clear water, a somewhat salty but refreshing taste remains. I know of no other preparation that will remove so quickly and effectually the fetor oris, which is most apparent after meals and upon wakening in the morning. A number of cases in which this fetor proved sufficiently objectionable to enlist medical aid were promptly cured by the application of chlorate of potash after the patients had been treated for internal ailments.

Chlorate of potash, being a neutral salt, has absolutely no detrimental effect on the teeth; if used in the concentrated 50 per cent form it will promptly check the growth of the fungi for a long time,

tooth. Crowning should be, just as it is in fact, *the last resort!* Many instances illustrating the abuse of crowning could be cited from the writer's observation, but he will confine himself to a description of a few general classes of cases. Occasionally he has removed gold crowns for the purpose of relieving painful conditions, and has found underneath live teeth so good, even after the wholesale grinding to which they had been subjected in the fitting of the crown, that he has been able to restore their contour and usefulness with fillings. Both gold and porcelain crowns have been seen by the writer in the mouths of patients under fourteen years of age, children of well-to-do parents, the other teeth being of average strength. Such cases are always from the hands of some practitioner who "makes a specialty" of crowning. Dentists of this stamp do not hesitate to condemn molars and bicuspids having ordinary compound approximal cavities to a hollow gold crown, positive assertion being made to the patient that the tooth is beyond hope of safety from fillings. Such crowns are usually put on without regard to contour, and as a consequence food crowds in and decay begins at the gum. Of course, when a tooth is once cut off and crowned it is almost impossible for other dentists to decide whether crowning was necessary or not, as all direct evidence is usually destroyed. The general condition of the other teeth and the density of the tooth-substance are about the only guides remaining, unless some opinion can be formed from a knowledge of the dentist whose judgment was followed.

One very weak point in crowning is the almost universal use of zinc phosphate for the cementing material. Gutta-percha is so much more reliable and durable as a cement, besides allowing the crown to be removed upon the application of heat whenever necessary, that it seems strange more operators do not use it in preference to the phosphate cements.

Amalgam properly selected, prepared and packed is, in the large majority of mouths, a very durable material, and it is, of course, the sheet-anchor in the building up of broken teeth, with the possible exception of the incisors, even though porcelain or gold, or a combination of the two, may be used for the purpose of hiding the amalgam from view. Dr. George S. Allan, of New York, in his recent able paper upon the subject of contouring, justly places amalgam among the "constants" of his equation, and whenever a method of restoration or partial crowning can be adopted which will admit of

the use of amalgam in place of the usual zinc phosphate, a great element of strength and durability is certainly added to the finished operation.

While the writer would prefer to leave to every dentist's ingenuity the methods most suitable for the restoration of broken teeth, provided each operator would give his thought to the preservation of what remains, rather than to the cutting away of everything in sight preparatory to crowning, it may not be out of place to briefly describe a few methods which have been of great service to the writer, and may, when modified to suit the special case in hand, be of some help to others. Before describing any certain methods it will, perhaps, be well to say a few words about some of the mechanical devices common to many operations. Metal pins for use in the roots of pulpless teeth as anchorage posts may be made of platinum alloyed with iridium, gold alloyed with platinum, or of stiff German silver wire, the latter being, of course, much less expensive but not quite so reliable for the demands in all respects as the first two named. This wire in several different sizes (say Nos. 3 to 7 of bur-gauge) should be always at hand, and before being used a shallow screw-thread should be cut upon it merely for the purpose of giving proper hold to whatever plastic material may be used in connection with it.

The writer prefers to select a screw a trifle smaller than the calibre of the prepared root-canal, and cement it in place with zinc phosphate, rather than to use a screw slightly larger than the canal, depending upon the thread cut in the dentin by screwing it in, as some operators do. What has been said above against the use of zinc phosphate refers, of course, only to its use in locations reached by the saliva. Stiff German silver is not as rigid as the other wires referred to, but will always answer if two roots can be utilized, a pin being placed in each. It is not affected by mercury, nor is ordinary clasp metal—gold and platinum—by the proportion of mercury in amalgam, though pure mercury will sometimes affect it slightly. Stiff German silver has been referred to because there are two varieties of the metal obtainable. The largest round bur used in preparing the root-canal for the reception of the metal pin should be measured in the bur-gauge, and a pin just one size smaller used.

The next adjunct of importance in many of these operations is the ring matrix of thin steel or German silver, which every dentist should have at hand in all sizes and widths. They are easily made,

a little muriate of zinc and soft solder only being necessary to join the ends, care being taken to place the point of union against tooth-structure when they are to be used with amalgam, so that the solder may not be eaten by the mercury. Thin steel of a variety of thicknesses suitable for the making of such matrices is now obtainable at most dental depots, though at a higher price, as is usually the case, than if the same be purchased of houses in that special line of business. They are useful daily to assist in the shaping of plastic fillings, and can often be made to serve as a help in contouring with gold or gold and tin. Their use is also indicated to encircle teeth having approximal decay extending some distance below the gum, the rubber-dam being easily applied after the placing of the matrix. A box, something like the one now shown with numbered pins for holding and separating the ring matrices according to size, is easily constructed, and with the measuring mandrel completes a most useful adjunct to any office.

Gold-faced platinum, which is pure gold welded upon pure platinum, is so useful in many cases of reconstruction that it should be referred to here with the other standard helps. It is very soft and can easily be made to conform to any surface, and the platinum side is, of course, valuable when amalgam is to be used. For ordinary permanent bands of gold-faced platinum, No. 32 is about the right thickness, thought when a split molar is to be banded a heavier number would be better, because of the great strain which would come upon it.

One of the most common accidents which dentists are called upon to repair is the superior bicuspid from which either the buccal or palatal face has broken, often to the gum line, carrying away frequently both approximal fillings. Such teeth are usually pulpless, and the remaining portions of the crown can be retained, and the contour restored either with amalgam or with a combination of amalgam and porcelain as follows: If the buccal wall is still standing, a strong metal pin should be cemented into the root and left nearly as long as the finished palatal portion is designed to be. All soft and frail edges having been cut away, a temporary band matrix, similar to those shown, is selected of a size suitable to represent the proper contour of the finished tooth, and is put in place outside of and around the broken crown and the pin, care being taken to fit the matrix accurately to the gum line above the break. The ring matrix

is then filled carefully and solidly with amalgam, the first pieces quite plastic, to enter all inequalities about the pin and broken tooth, but hard and dry amalgam should be used when the operation nears completion. The ring should be left on the tooth for at least six hours to support the amalgam until fully hard, when it should be removed and the amalgam shaped and polished.

Should the buccal wall instead of the palatine be broken off, a cross pin porcelain facing of the proper size and color should be selected and ground to fit the buccal aspect of the tooth just under the edge of the gum. The pins of the porcelain are now fitted into a narrow scrap of platinum, or gold and platinum, and soldered with eighteen-carat solder. This cross-piece of metal is attached to the pins near their ends at a sufficient distance from the facing to allow a screw to pass through the square opening thus made. The screw is then cemented into the root, the porcelain placed in its proper position with its joined pins encircling the screw, and a temporary band matrix of proper size is used to surround the various parts of the combination. Enumerating these parts from without inward, there are the steel band, the porcelain facing, the screw, the palatal wall of the natural tooth, and again the steel matrix. Amalgam is then packed into the matrix and all about the pins of the porcelain, the screw which is secured far up in the root, and into the inequalities of the palatal wall of the tooth. When the matrix is removed the next day and the amalgam finished, the result is most pleasing.

Should the broken bicuspid have a living pulp the palatal portion could be contoured with amalgam packed into a band matrix, a good anchorage being obtained at the cervical wall, and care being taken not to build the filling out to the shape of a normal cusp. When the buccal wall of a living bicuspid breaks, the porcelain selected should be backed with a piece of thin gold-faced platinum, the backing being extended to form a permanent band around the palatal wall of the tooth and amalgam being built into the band between the porcelain and the remaining tooth wall. Should it be a second bicuspid in a man's mouth, a porcelain facing would not always be necessary, in which case a permanent band of gold-faced platinum should be carefully fitted around the remaining wall and the neck of the tooth and filled in solidly with amalgam. This band should be almost as deep as the required length of the tooth.

Where molars break so badly as to prevent the use of any of the above described methods, the writer prefers often to use an open band of gold-faced platinum fitted carefully to the gum line of the remaining portions of the tooth rather than a finished and more esthetic gold crown, for the reason that after cementing the screws into the roots and placing the fitted band in position a good view of the interior can be obtained while amalgam is being packed against the broken margins of the tooth and about the screws until the band is full.

Strict contour can be practiced in all these methods, care being used in the selection of the ring matrices and in the fitting of the permanent bands, the material of which both are constructed being so thin as to be easily burnished out to even an exaggerated contour before the introduction of the amalgam.

When two or more screws can be anchored well down in molar roots it is perfectly safe, and adds to the good appearance of the finished operation to groove the amalgam at a subsequent sitting and cover it with gold. Aside from the improved appearance, gold certainly makes a better and safer masticating surface than amalgam almost anywhere, the amalgam being so brittle that small pieces chip off from those margins which receive the greatest force of occlusion, decay resulting. So hard is amalgam that it does not wear down to keep pace with the surrounding tooth-substance, which fact causes it often to act as a wedge, thus helping to destroy the tooth it was intended to preserve.

Devitalized superior cuspids often break seriously, leaving but a shell which would not of itself hold any sort of filling for a great length of time. It seems to be the general custom to crown such teeth, but should there be enough of the labial enamel remaining to give a fairly good appearance, the writer derives more satisfaction and he believes a stronger result from cementing a screw into the root and restoring the contour with amalgam, zinc phosphate being used against the thin labial enamel to prevent the amalgam from showing through. At the next sitting the amalgam in sight is grooved and covered with gold.

A word should be said in commendation of those conservative operators who have withstood the onward march of incisor crowns of all descriptions, their great manipulative skill and knowledge of the principles of dental architecture enabling them to restore with gold

the portions lost by decay, accident or wear, often preserving pulps alive and postponing for perhaps ten years or more the evil day when a crown may become necessary.

Much pleasure is taken in referring here to the "gold bandage" devised by Dr. J. F. Adams, of Worcester, a description of which was published in THE DENTAL DIGEST for January, 1896. It is certainly a most valuable expedient for preventing fracture and decay of frail teeth and for the protection of worn and eroded surfaces. The idea is susceptible of much expansion, and probably all who take advantage of Dr. Adams' originality will find extended and varied uses for the gold bandage.—*International Dental Journal, April, 1897.*

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CAPPING EXPOSED OR NEARLY EXPOSED PULPS. By Dr. W. A. Lee, Allegheny, Pa. Read before Odontological Society of Western Pennsylvania. First, I will describe my idea of a pulp-cap. It must be a disinfectant, an antiseptic and antiphlogistic, and most important of all, a non-conductor of thermal changes. It should invariably fit closely and accurately the surface to be covered, being at the same time firm and unyielding. As a disinfectant I have found nothing better than pure beech-wood creosote. As an antiseptic and antiphlogistic, iodoform has proven the best. As a non-conductor capping material I have found gum copal, dissolved in sulfuric ether, the most satisfactory.

In capping exposed or nearly exposed pulps, apply the rubber-dam. If possible, open the cavity, so as to give a good view of the interior; remove all debris and softened dentin, being careful not to impinge on the pulp. I now take my disinfectant (creosote), saturate the cavity with it and wipe dry. Iodoform is introduced, followed by the application of copal ether varnish, a little thicker than cream. This is applied with a small pellet of cotton and dried with warm-air blasts. A number of coats may be applied if desired. When the tooth is not sensitive to a blast of cold air it is sufficiently lined. If the exposure is large, I always place a piece of asbestos paper, cut to shape of the floor of the cavity, into the varnish before it hardens, pressing it down gently, then revarnish over the asbestos and dry. I then place a thin mixed paste of oxyphosphate of zinc in the cavity over the cap. This, however, should never be pressed or forced into place, for injury may and is almost certain to follow any compression of the pulp. The cement must set thoroughly

before filling with either gold or amalgam. Besides being a non-conductor, and adapting itself perfectly to the surface covered, it protects the sensitive tissue from the irritant action of the phosphoric acid used with the cement. This is the best method of capping that I have yet found, the material being a non-conductor of heat and cold, soothing to the pulp, and a preventive of all inflammatory action.—*Ohio Dental Journal, April, 1897.*

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THE SEVIER CROWN. By Dr. Chas. H. Sevier, Paris, Tenn. The profession will undoubtedly appreciate my method of making a gold crown. Having a tooth with large cavity, fill the cavity with soft wax, ask patient to "bite," trim off excess, and contour to the proper shape. Having done this, take plaster impression, from which procure a model of tooth to be crowned. Cut said tooth from the rest of the plaster model, following gum margin in so doing. Then melt some low melting but hard metal, such as Melotte's or Babbit's; pour into a section of rubber hose an inch in diameter and about the same in height; just before it sets place the plaster model, cusp downward, in the metal; pack it well around the edges of model of gum line; allow to cool, then dig out plaster.

Having an exact impression of the tooth in the metal, take wire measurement of neck of tooth, and if you have not the Morrison outfit, borrow or buy one. Carry the gold plate down to the number of die that exactly fits into wire measurement. Having your gold cup formed of proper size, force it by a few slight taps of the hammer into the metal impression; put small shot in the "cup" and stamp down, using die one size smaller than the number which the wire fits. Mark the margin line on the protruding rim of gold; heat metal nearly to liquid state, after having *first* picked out the shot, and push the crown out of the impression metal; cut off gold at marked line and crown is ready for the tooth. Grind off the natural tooth and no bite is necessary, as the crown is an exact reproduction of the tooth to be crowned.—*Items of Interest, April, 1897.*

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INSANITY OF ENGLISH PEOPLE. Prof. Holt Schooling has recently completed his investigation relative to the sanity of the English people; and he concludes that one person in every 360 of the population of Great Britain has some form of insanity. He gives a very interesting table of his deductions. In every 10,000 of the

English and Welsh population 31.4 people are insane. In 10,000 of the Scotch population 33.6 people are lunatics. In an equal number of Irish 40.3 people suffered from insanity. As among the chief causes, with the percentage of each in classes of a hundred, he gives the following: Drink, 33.6; domestic troubles, 15.1; mental anxiety, 13.4; old age, 13.2; adverse circumstances, 13; accidents, 6.5; religious excitement, 4; love affairs, 3.2. This places the blame heavily on the use of alcoholic stimulants and emphasizes injurious effects of all liquors capable of producing loss of sensation.—Trans. by Dr. B. J. Cigrand, from *Journal Der Heilkunde, March, 1897.*

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ENCYSTED TEMPORARY TOOTH. By G. Lenox Curtis, M.D., New York. A lady was once referred to me by Dr. Marrick, who had cared for her teeth until the bicuspids had erupted, when she moved to a western city, and at the age of thirteen her dentist there noticed a fistula near the lower left first bicuspid. For more than a year he tried in vain to indicate the cause of pus, and thinking possibly the pulp in the second bicuspid might be dead, he extracted it only to discover his mistake. The patient returned to Dr. Marrick in September, 1891, who discovered the disease deeply seated in the bone. In January of the following year I saw the patient. Passing a probe down along the fistula, I discovered beyond the mental foramen an opening in the substance of the jaw about the size of a cherry. Here I readily detected the enamel of a tooth and operated, removing a perfectly formed first molar of the temporary set. One root was nearly absorbed, and in the masticating surface there was a large cavity, most of the enamel being covered with salivary calculus. The wound healed rapidly and perfectly. Two years later I had a report from the patient that no untoward symptoms had presented.—*Items of Interest, March, 1897.*

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EMPTY PULP-CANAL. By Dr. Hyatt, Brooklyn, N. Y. I came across a case last summer which was new to me. I was cutting down a bicuspid tooth to crown it. There was a cavity—not a large one—on one side, and in removing the decay I found an exposure of the pulp. I treated it, capping it with asbestos paper and inserting cement filling probationally. The patient then left town, returning in a week, when I proceeded to complete my operation. In grinding the tooth I removed the cement filling and the asbestos,

but to my amazement I found the pulp-chamber empty wholly to the end of the root. When I first exposed that pulp it bled freely, yet within a week's time there was nothing there; the canal was perfectly dry. The patient, an old friend of mine, said probably it was like some dead tree we have all seen, on one end of which there is a little green twig. In this case the pulp was probably dead before I commenced operating on it, and perhaps just the corner I touched had a bit of life.—*Items of Interest, March, 1897.*

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EUCAIN IN DENTAL PRACTICE. By Dr. B. Dzierzawski, Warsaw. My experiences with eucain date from August last; prior to that time I employed ethyl-chlorid. There were many reasons why I hoped to reach a safer anesthetic than the latter; among which were the great difficulty of directing the stream to such a point as I desired; the profuse flow of saliva; the impossibility of anesthetizing both surfaces of the gums at the same time; the pain which it produced; the brief duration of its power; its brevity of action; and lastly, the great cost of this anesthetic agent. Further, ethyl-chlorid does not induce complete loss of sensibility, and often when employed to produce local anesthesia it accomplishes general insensibility; and these decided disadvantages have spurred me to investigate other drugs.

Relative to cocain, I must say that it does not effect when applied locally or externally a sufficient anesthetic power to bring about even approximate insensibility; and when a very strong solution is used it is dangerous to life. A one per cent solution has often given serious trouble. During the present year I extracted about 100 teeth with the aid of cocain and had four cases of poisoning, three of which became alarmingly serious, although I employed but one-sixth grain. And a one per cent solution is not powerful enough when removing roots affected with periodontis. Among the unfavorable points in connection with cocain I mention:—the possibility of poisoning, even with a weak solution; the impossibility of injecting it when there is inflammation of the peridental membrane; its uncertainty in weak solutions; the secondary hemorrhage which is liable to occur.

Being a firm advocate of local anesthesia, my attention has been directed to eucain. I have employed the latter agent on 81 private patients—75 times in extractions and 6 times for other treatment.

I used a ten per cent solution in 16 cases for 27 extractions, using a quarter to one syringeful (2-5 to 1½ grains eucain), and in one case I employed two syringefuls (3 grains). In no case were there any symptoms of poisoning or faintness, as frequently occurs with cocain. In the case where I used two syringefuls the patient was somewhat dazed during the operation, though her pulse was not accelerated; she did some vomiting, yet slept well that night. None of the other patients gave evidence of any unpleasantness. The anesthesia of the ten per cent solution was complete, and in two of the operations the patients were not aware of the primary steps in the operation. In several cases, where a number of teeth were to be removed, I employed eucain solution on some teeth and cocain solution on others; the former agent produced complete insensibility, while the latter only approximated this state. The injection of the eucain may have been slightly more painful than the cocain, yet if the gum were painted with a solution of eucain prior to the injection very little pain was felt. Three patients had a little swelling after the operation; in seven there was no suffering, and in six the effect of the eucain was unnoticeable. I used a five per cent solution in 46 cases and no general symptoms manifested themselves. The dose of eucain was never more than three-quarters of a grain. The following points I schedule relative to my experience with eucain: (1) It possesses full anesthetic powers and is free from toxic effects. (2) A five per cent solution is sufficiently powerful; the doseage ¾ grain. (3) A five per cent solution is more effective than one per cent of cocain. (4) Inform patients that there may be slight swelling. (5) Eucain injected into abnormal tissues possesses little anesthetic powers. (6) The injection must be made slowly, thus spreading the drug. (7) Blanching of the tissues shows when sufficient eucain is present. (8) Any further injection must be made external to blanched tissue. (9) The injection should be deep-seated—superficially it gives trouble.—Translated by Dr. B. J. Cigrand, from *Zahnaertzliche Rundschau, January, 1897.*

A WESTERN EXCHANGE says that a practical revivalist requested all in the congregation who paid their debts to rise. The rising was general. After they had taken their seats, a call was made for those who didn't pay their debts, and one solitary individual arose, who explained that he was an editor, "*and could not, because the rest of the congregation were owing him their subscriptions.*"

Letters.

REPLY TO DR. BOICE.

PHILADELPHIA, May 20, 1897.

To the Editor of the Digest,

DEAR SIR:—There appeared in the February number of your journal a notice of the official organ of the alumni of the Philadelphia Dental College, "The Stomatologist." In the friendly notice was a statement that it was issued in the interests of the Alumni *Association;* the title of the organization is the Alumni *Society*.

One of your correspondents comments upon this error of title. Indeed, some explanation seems necessary in this direction. As an alumnus of the Philadelphia Dental College of nineteen years' standing, who has taken a personal interest in the affairs of the institution, I am surprised to know of the existence of a Philadelphia Dental College Alumni *Association*. There was such a body, I believe, which led a decrepit existence for several years, and about ten years ago was strangled by politics; it may be that your correspondent could furnish the details of that strangulation.

Our Alumni *Society* includes in its membership all but a few of the two thousand five hundred graduates, is in a flourishing condition, holds regular meetings and transacts business; one feature of which is to issue a journal, "The Stomatologist," in the interest of those Alumni who have any honest sentiment for their Alma Mater.

Yours truly, F. D. GARDINER, D.D.S.,

Chairman of the Executive Committee of the Alumni Society of the Philadelphia Dental College.

NEW YORK LETTER.

NEW YORK, May 19, 1897.

To the Editor of the Digest,

MR. EDITOR:—Dr. Shumway, of Plymouth, Mass., made a very novel operation before the Dwinnelle clinic in April—"Tin and Gold"—but not as we have heretofore seen it combined. He first placed the tin in the cavity, pieces about three-eighths of an inch in length cut from a hard twisted rope, filling the cavity nearly full, and then polished the surface with an ivory instrument, never using

a steel one, as it would destroy the "adaptability," as he expressed it. On this polished surface he delicately placed single layers of No. 3 gold, annealed, with the ivory instrument, and this readily adapted itself to the tin, so that it could not be detached, as the demonstrator proved. He then finished with cuttle-fish discs and fine powder, making a good filling, not so hard as a malletted one, but suited for all practical purposes on buccal and labial surfaces. He did not use a steel burnisher on the final surface, as that would so harden it that it would flake. This operation is very artistically and delicately made, or, as Dr. S. G. Perry remarks, "It is desirable, considering how much labor is saved by the operator and comfort gained by the patient." Dr. Shumway introduced this novel method of combining tin and gold, believing the principle to be valuable. He is now on record; time will tell more of its virtues. He also read a paper at the evening session of the Odontological Society, "A Night with a Doctor," very suggestive and entertaining.

Mr. Clark, of Boston, gave a very intelligent talk regarding the features desired in the rheostat, showing in this connection an invention of his own conceded by electricians to be ideal in its perfection.

Dr. Woodward exhibited a new device in a cervical clamp. Dr. Shumway, we noticed, used an excellent clamp that served a very practical purpose, being readily placed in position, firmly fixed, and securing a liberal space for operation. It was announced at this session of the Odontological that Dr. J. Leon Williams, of London, has been made an honorary member of the society.

The sudden demise of Dr. Frank Abbott has been a decided surprise. Not many were aware that he had had serious organic trouble with his heart for some time, which might terminate fatally at any moment. The attendance at his funeral was not very large, not many of those he had been associated with for the last thirty years being present. We naturally thought, as he had held the office of dean of the New York College of Dentistry for so many years, that there would have been a delegation sent to the funeral, but there was none. The Odontological Society laid a beautiful offering of flowers upon his casket. Dr. Abbott has left, doubtless, a large and lucrative practice which must necessarily be scattered, for no one could gather it up even under the most favorable circumstances.

Such things can be done in Europe, for the customs are widely different. This would be an advantage were it so in this country,

so far as the financial aspect is considered. It has often been a matter for discussion here in New York whether one did not owe it to his clientage to have an associate, so that the practice might be transferred into skillful hands and the people not be left to the mercy of everybody. It has been argued that one does owe something to those that have trusted them after many years. It is said that a practice in New York is not so stable as in former years. The effect of advertising places, which are increasing, is being felt to no little extent. We cannot disguise the fact that the public will and do make choice of their dentists from a variety of motives, and we do not see any way of bringing about a change. We believe it is a good trait to be so skillful that one comes to feel he does not wish to exchange with anyone. Dr. Atkinson was wont to say that, "Everyone should have the desire to be the best dentist living." There is no danger in such an ambition. We met a man on Broadway only a few days since who might well feel that he has approached that ideal. We do not know of anyone who has been more diligent in producing skillful results, both for his patients and his profession, than Dr. Corydon Palmer. We told him it did us good to see him, for he looked good for another decade. He was one of our earliest acquaintances among the Atkinson coterie in 1862; few are left. It seemed strange to find at the banquet given Dr. Williams during his visit to New York that we were the oldest one out of twenty present; Dr. Northrup the next oldest.

The April number of the *British Journal of Dental Science*, for the first period, gives an emphatic illustration of how "doctors disagree;" in the articles on Copper Amalgam, what an amount of printer's ink. And in the same journal, for the second period, they feel a little provoked if an American succeeds in their country, which is quite natural.

But dentistry comes into usefulness in many ways—note the recognition of a titled lady, one of the unfortunates of the terrible tragedy in Paris, by her dentist, who made her identity sure by the teeth. These things help to wipe the former stigma of "Nothing but a dentist" out. We think this remark was coined in France.

Dr. Bogue is on crutches, recovering from a surgical operation for the removal of tumor of very serious nature. His friends will all hope for a speedy and final recovery.

We think Dr. Catching's article on consolidation of societies in the May *International* is so much to the point that it will be *Catching*.

We learn by a letter from an acquaintance in Tien Tsin that since Li Hung Chang was in this country three American dentists have settled in that city. This is the palace residence of that man of the peacock feathers and there is a boom of modern improvements going on, together with American-built railroads. If we were young in years we would look that way for a prospect.

The latest dodge in New York is aluminum-lined plates of rubber. It is painted on like bronze paint and looks fairly well, but lasts only long enough to sell the plate. These advertising fakirs get $20 for these frauds.

The state society has had its yearly session, and selected Dr. Burkhart, of Batavia, for president. The city societies are off until autumn. Cordially, NEW YORK.

PHILADELPHIA LETTER.

PHILADELPHIA, May 17, 1897.

To the Editor of the Digest,

DEAR EDITOR:—The first time a man sees his name in a paper he buys it and wonders why anyone would think of taking any other paper. If by chance he should contribute an article, and the editor, being a little short of material, should insert it in the next issue, the author would be of the opinion that extra copies should be sent out for the diffusion of knowledge.

Commencement days in this city are in full blast, or rather were a short time ago, that is, in the dental line. There are three schools here, with an estimated attendance of 1,100, from which number about 350 are sent out as full-fledged stomatologists. If they were turned out as dentists their next step would be to attend some post-graduate school and learn how to construct an artificial denture. Still with this number Philadelphia is not content, and she has organized a fourth school, the dental department of the Medico-Chirurgical College.

Referring to Commencement week, it is also a week of dinners in great variety. The number present varies from five to one hundred, and all kinds of speeches are delivered. Swelled heads come from these speeches, but more come from the flow of good fellowship, and all such gatherings end with the declaration—"We will meet again."

A few Philadelphia dentists are following the lead of their Chicago brethren by having their offices in office buildings. There are fifteen of them in different buildings at the present time. The first one to make this move was Dr. F. L. Bassett, who started five years ago. Personally and professionally anyone who follows him will not go astray.

At the annual meeting of the Odontological Society of Pennsylvania Dr. A. P. Brubaker was elected president. The placing of a medical man at the head of a dental society is quite an innovation on past customs. Dr. Brubaker's ability as a presiding officer and his tact in arranging committees, together with his personal popularity, should produce excellent results for the coming year.

The *Dental Cosmos* in a recent editorial has offered to the profession its apology for neglect of duty, by saying: "We were not favored with a copy of the report for publication in this journal, which may in some degree explain the absence of comment upon it on the basis that but a minority of the profession have read it. Certainly it is not lacking in features interesting and important enough to arouse the attention of the most apathetic."

While the editor may not have received a copy direct, he evinces that he knows well where it was published—in the DIGEST—and that he has seen it, as he seems to appreciate its value and sarcastically regrets "that but a minority of the profession has seen it." The truth of this last statement might be questioned. Why has he not acted in the premises before?

This position is the more peculiar in the light of the fact that his journal has exclusive control of reporting the proceedings of another association, and for ten months has failed to give to the profession the details of that meeting in which he himself took part, the import of which is of such vital importance to all who hold the fair name of the profession dear to the heart, and yet the *Dental Cosmos* is "devoted to the interests of the profession." QUAKER.

RESTORATION OF HARDENED RUBBER.—Any rubber goods which have become hardened by age may be restored to almost the original softness by soaking for a short time in ammonia diluted with twice its bulk of water. This will not injure the rubber.—*Dr. Fowling, Albia, Iowa.*

GOOD INVESTMENT.—Dr. Ross, professor in Vanderbilt Dental College, said on one occasion that what he regarded as the best investment he ever made in his life was, when a boy, he gave a quack dentist $5 for three lessons instructing him how to use the brush, quill pick and cobbler's thread, now superseded by dental floss.—*J. S. Spurgeon, in Dental Headlight.*

The Dental Digest.

PUBLISHED THE

TWENTY-EIGHTH DAY OF EVERY MONTH.

Editorial.

"OUR NATIONAL BEGGAR ON HORSEBACK"

This is the title of a rather long editorial in the May number of the *Dental Cosmos*, in which the organization of the National Association of Dental Examiners, and new rules, as adopted at the meeting last August, and published in the December, 1896, number of the DIGEST are analyzed and criticised.

The article is too long to be discussed here in detail, but it is a vigorous and sarcastic attack on the requirements, prescribed by the association, of dental colleges for recognition, questioning its right to make rules and enforce requirements for the standard of the colleges, claiming that, "The function of the dental examining board of a state is therefore purely and exclusively executive. The most liberal construction of its purpose and its powers can never invest it with an educational function;" also discussing the legal aspect of the question which involves the law of state rights.

We are under the impression that there are some court decisions which give the stamp of authority to the National Association of Dental Examiners, and so have come to consider this organization as vested with power. However, we do not feel quite sure that we are right in this belief, but we are positive that state laws prescribing requirements in order to practice dentistry and medicine have been sustained by our courts. If all the states had uniform laws, which stated just what education and training must be had before entering upon practice, graduates from such colleges as refused to comply with these requirements would be at a decided disadvantage. In which case the stamp of reputability by the National Association of Dental Examiners must be of importance.

The National Association of Dental Examiners and the National Association of College Faculties are both of the greatest importance to the dentists. The dental profession has never accomplished what it should because of the lack of harmony and co-operation, but as regards educational matters, as shown by the past work of these two organizations, it is in advance of other professions. It would seem

as though two such important bodies as these should be able to work together harmoniously, and we should regret to see anything arise which tended in any way to disrupt the friendly relations existing between them.

We believe the laity of the profession will watch with unusual interest to see how other college men will regard the rules adopted by the National Association of Dental Examiners. Certainly the editor of the *Cosmos*, who is also the dean of a dental college, has spoken his mind forcibly and with more than usual feeling. We call special attention to his editorial, fearing that only a minority of the profession might see it and study the situation.

THE MEETINGS THIS MONTH.

We much regret that we were unable to attend the annual meeting of the Illinois State Dental Society, but the needs of the Protective Association called us away just at that time. We were very glad to learn that the society had the most successful meeting it has held for years. The attendance was very large, about forty new men joined the society, the papers were most excellent and great interest was manifested in the discussions. All who were present report that they were greatly benefited by attending and that they feel new life has been infused into the society. We are pleased to record the fact that the society appropriated $300 for the Protective Association, and that several new members were obtained.

At the same time we were doing our best at the joint meeting at Old Point Comfort, and besides getting many new members, we became acquainted with and interested those at this meeting, so that greater activity for the cause will surely result. The societies which met there were the Maryland State, Virginia State and Washington (D. C.) City, and although the attendance was not overly large, the interest was great and the meetings very attractive. The program was long and had rather more important questions to discuss than could be well considered in a three days' meeting. Besides having the pleasure of becoming acquainted with the profession in that section, we completed the arrangements for the American Dental Association, which meets the first Tuesday in August, and will give full details in our next issue.

The meeting of the New York State Society at Albany we have discussed in another editorial, but would say in passing that the

meeting was large, great interest was shown, new members were obtained and added interest in the Association aroused.

PLAGIARISM AND CONSISTENCY.

In an editorial on plagiarism in the November, 1896, number of the *Dental Cosmos*, written because an author seemed to have taken some ideas from a former number of that journal, is the following—"The piratical journal is sufficiently contemptible, and the individual plagiarist is none the less so. They belong in the same category, but the crime in a journalistic sense has been somehow regarded as less heinous than when perpetrated by an individual, for what reason is not clear, except it be that the individuality of a journal is not so manifest as that of an author or a writer."

In the December, 1896, number of the DIGEST, illustrated by a cut, appeared the following article on "Festooned Gums," by Dr. M. L. Fay, of Buffalo:

The accompanying cut illustrates a very simple and easy, yet effective mode of making a carved or festooned gum or an artificial denture, without the tedious carving by hand which involves considerable time and patience. The method of procedure is as follows: Arrange the teeth and wax up the case as desired, but leave the necks a little exposed, and with a closely-woven cotton string, which has been drawn through melted wax and allowed to cool, festoon the necks of the teeth as shown in cut, pressing the string between them with any instrument suitable for the purpose. Then with a warm spatula unite the string to the wax and smooth up the case with a mouth blow-pipe, which will draw the wax up on the string and give pleasing results. Invest and pack the case, removing the string with the wax.

When ready to finish, trim up with a sharp instrument the thin margins of rubber overlapping the teeth and polish with pumice and a stiff brush-wheel. This will reduce the prominence of the festoon and make it very lifelike. Do not polish the pink rubber with the fine wheel, as the effect is much better when left dull.

In the February, 1897, number of the *Dental Cosmos* we find the following:

Dr. Richard Kessell, of Buffalo, addressed the convention on the subject of "Unbreakable Vulcanite Dentures, and Other Novelties of Mechanical Dentistry." He submitted for inspection an artificial set of plain teeth to illustrate his plan of festooning the gums without carving them, which is as follows: After the teeth are set up and waxed in the usual manner, a thin, tightly-wound string is first run through hot wax, then laid around the necks of the teeth, following the curve of the gums at the gingival festoons; the string is smoothed and leveled down to the height of the wax plate, and the wax polished, with the string in position, using a soft brush and chalk. The case is now ready for investment.

After it has been vulcanized, the pink, rubber-festooned gums are polished with hard brush and pumice, then with soft brush and chalk, making a beautiful looking set, both in and out of the mouth.

Let us quote again from the editorial in the *Cosmos* above referred

to: "A comparison of these essays will be found interesting. Even a superficial inspection will show that the one of recent publication is almost a verbatim transcription of the original, which was first published in this journal. An entire absence of quotation marks or of a line of credit for the ideas appropriated is noticeable. This absence of quotation marks is possibly an oversight upon the part of the writer, or possibly a printer's error. In either event it is a piece of stupidity which should have been corrected in a later issue."

It does not seem necessary for the DIGEST to add anything to the case the *Cosmos* has made against itself. It is on record as opposing the stealing of matter from its columns; now let it attempt to justify its own pilferings, unless the editor considers that the ethics governing ordinary mortals do not apply to him.

MEETING OF THE NEW YORK STATE SOCIETY.

On our trip we attended this meeting. There was a great deal to interest, as is always the case with this society, but we cannot here give much in detail. We wish, however, to comment on two things in connection with this society and this particular meeting. First, the organization; the state of New York has an excellent method of banding the profession together. The state is divided into sections or districts and these branches go to make up the state society. So far as we could see the plan is working admirably, and other states would do well to study and pattern after this idea. No doubt any officer of another society can get a copy of the by-laws and examine the plan of organization.

The other feature of this meeting concerning which we wish to speak was the practical demonstrations given by Dr. Black on the character and manipulation of amalgam. He had arranged to have the members come the day before the meeting and bring with them samples of the amalgam they used in their daily practice. They then filled cavities in steel tubes with it, took the measurement of the fillings with a micrometer and examined them with a microscope, and the next day took measurements again, which gave the amount of shrinkage and showed the defects in the amalgam as well as in the manipulation.

There are two good results that come from such clinics: First, the members soon learn which are the better preparations on the mar-

ket, and also discover the difficulties of manipulation, as the microscope shows very readily the defects of manipulation and in such a way as we cannot have illustrated in the mouth. We have been working along this line for many months and feel sure that the micrometer test, as well as an instrument to test the strength under pressure, is bound to give good results in the use of amalgam as a filling material.

Book Reviews.

NOTES ON THE HISTORY OF ANESTHESIA. THE WELLS MEMORIAL CELEBRATION AT HARTFORD, 1894. EARLY RECORD OF DENTISTS IN CONNECTICUT.—By James McManus, D.D.S. Printed for the Author by Clark & Smith, Hartford, Conn., U.S.A., 1896.

The writing of history is generally a labor of love, and often love unrequited. Certainly in the present instance these interesting historical notes have been prepared by one whose devotion to the subject has always been intense, and the spirit of that devotion is manifested throughout the book. Dental history, that which records the birth and development of our specialty, must necessarily be made up of or based upon the collected gleanings which qualified individuals have made, each within his scope of observation. The contribution which Dr. McManus has made to the volume before us is one of first value. It deals with one of the most important, yes, the most important contribution which our profession has given to humanity—and it is well done. The author has well earned the gratitude of the whole dental profession for his interesting and able presentment of it.—*Cosmos.*

Notices.

COLORADO STATE DENTAL ASSOCIATION.

The regular annual meeting of the Colorado State Dental Association will be held June 8-10, 1897, at Colorado Springs. The special feature of this meeting will be the demonstration by clinics of the various dental subjects under discussion. J. S. JACKSON, Sec'y Ass'n, 1515 Stout St., Denver, Colo.

MISSOURI STATE DENTAL ASSOCIATION.

The thirty-third annual meeting of the Missouri State Dental Association will be held at Pertle Springs, Mo., July 6-9, 1897. We expect a large atten.

dance both from within and without the state. The surroundings will be pleasant and the meeting profitable.

F. M. FULKERSON, Cor. Sec'y, Sedalia.

DENTAL DEPARTMENT, UNIVERSITY OF BUFFALO.

The Dental Department of the University of Buffalo held its fifth annual commencement exercises, in connection with the Departments of Medicine and Pharmacy, in Music Hall, Buffalo, the evening of April 27, 1897. The whole number of students matriculated for the term was 222. The seniors numbered 70, juniors 70, and freshmen 82.

TENNESSEE STATE DENTAL ASSOCIATION.

The meeting of the Tennessee State Dental Association has been changed from Lookout Mountain to Nashville, and will be held July 6–8, and the 9th to be devoted to attending the Exposition. All dentists in good repute are cordially invited to meet with us.

U. D. BILLMEYER, Pres.
D. B. BRABSON, Sec'y.

MASSACHUSETTS DENTAL SOCIETY.

The thirty-third annual meeting of the Massachusetts Dental Society will be held in Harvard Dental School Building, foot of North Grove street, Boston, Wednesday and Thursday, June 2 and 3, 1897. Board of councillors meet at 9:30 a. m., Wednesday. Meeting of society 2 p. m., Wednesday. A good meeting is promised. Please mark off the dates now, and be sure to attend.

EDGAR O. KINSMAN, Sec'y, Cambridge.

NEW JERSEY STATE DENTAL EXAMINATIONS.

The Dental Examining Board of New Jersey will meet at the Commission rooms, 88 Broad street, Elizabeth, N. J., on Tuesday, July 13, 1897, for the examination of candidates for license to practice dentistry. All applications for examination must be in the hands of the secretary on or before June 30. Blanks and instructions sent on application to the secretary.

G. CARLETON BROWN, Sec'y, 88 Broad street, Elizabeth, N. J.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-third annual meeting of the Illinois State Dental Society was held at Peoria, May 11 to 14, 1897. The following officers were elected for the ensuing year: President, J. A. W. Davis, Galesburg; Vice-President, W. A. Johnston, Peoria; Secretary, A. H. Peck, Chicago; Treasurer, E. D. Swain, Chicago; Librarian, Grafton Munroe, Springfield. The next annual meeting will be held at Springfield, May 10, 1898. A. H. PECK, Sec'y.

INDIANA STATE DENTAL ASSOCIATION.

The Indiana State Dental Association will hold its thirty-ninth annual meeting in Fort Wayne, commencing at 10 a. m., June 29, 1897, and continuing through three days. Members of the profession are cordially invited to be present and to participate in the proceedings.

The State Board of Dental Examiners will meet in the New Aveline Hotel, Monday, June 28, at 2 p. m., to examine all applicants for license.

M. A. MASON, Sec'y.

COLORADO'S NEW DENTAL LAW.

The governor has signed a bill enacted by the last General Assembly to regulate the practice of dentistry in the State of Colorado.

The main features of the bill are—that the Board of Dental Examiners shall consist of five (5) members, three of whom shall be recommended by the State Dental Association. No temporary licenses are to be issued. All applicants for a license shall be examined by the Board of Dental Examiners. No one shall receive a license or be eligible for an examination who does not, as a prerequisite for such examination, possess a diploma from some reputable dental college. J. S. JACKSON, Cor. Sec'y, Colo. State Dental Ass'n.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

On May 25, 1897, Governor Tanner sent to the senate the following nominations: Members State Board Dental Examiners—J. L. Bingham, of Chicago, to succeed A. W. Harlan, resigned; J. H. Smyser, of Chicago, to succeed L. L. Davis, resigned; Homer W. Pitner, of Fairfield, to succeed L. Irons, term expired; A. C. Barr, of Alton, to succeed G. A. McMillen, term expired; W. C. Jocelyn, of Cairo, to succeed J. W. Wassall.

RESOLUTION PASSED BY CHICAGO DENTAL SOCIETY.

At a meeting of the Chicago Dental Society, held on May 4, 1897, the following resolution was offered by Dr. Truman W. Brophy, and unanimously carried:

Whereas, the dental colleges and state dental boards of the United States have been charged by dental societies of Europe with methods which are not only degrading to American dentistry, but result in a positive injury to the people, and are especially humiliating to skillful American dentists practicing abroad;

It is charged, and truly, that foreigners unable to speak and understand the English language and in many instances possessing limited or no knowledge of dentistry, have been admitted to advanced classes of our colleges and permitted to graduate;

Moreover, that our state boards have also examined such candidates through interpreters, and after receiving their certificates, these foreigners have returned to Europe and announced themselves as American dentists.

Resolved, It is the sense of the Chicago Dental Society that all candidates for admission to our colleges be examined in the English language; also that our state dental boards conduct their examinations in English.

A. H. PECK, President,

Chicago, May 26, 1897. GEO. B. PERRY, Cor. Secretary.

RESOLUTION PASSED BY ODONTOGRAPHIC SOCIETY OF CHICAGO.

At the meeting of the Odontographic Society of Chicago, held on May 10, 1897, the following resolution was offered by Dr. Frank H. Zinn, and unanimously carried:

Whereas, the dental colleges and state dental boards of the United States have been charged by dental societies of Europe with methods which are not only degrading to American dentistry, but result in a positive injury to the people, and are especially humiliating to skillful American dentists practicing abroad;

It is charged, and truly, that foreigners unable to speak and understand the English language and in many instances possessing limited or no knowledge of dentistry, have been admitted to advanced classes of our colleges and permitted to graduate;

Moreover, that our state boards have also examined such candidates through interpreters, and after receiving their certificates, these foreigners have returned to Europe and announced themselves as American dentists.

Resolved, It is the sense of the Odontographic Society of Chicago that all candidates for admission to our colleges be examined in the English lan-

guage; also that our state dental boards conduct their examinations in English.

GEO. B. PERRY, President.
H. H. WILSON, Secretary.

Chicago, May 26, 1897.

LIST OF LATEST DENTAL PATENTS.

581,335. Cassius M. Carr, Eureka, Utah. Dental Bridge-Work.
581,407. George N. Oldham, St. Louis. Sterilizer for Dentists' Instruments.
581,670. Basil M. Wilkerson, Baltimore, Md. Dental Chair.
581,986. Aaron P. Gould, Canton, O. Dental Chair.
582,045. Wm. S. Depew, Jamestown, N. Y. Dental Plate.
582,046. Wm. S. Depew, Jamestown, N. Y. Metal Paint for Dental Rubber.
582,213. Edward B. Lodge, Cleveland, O. Dental Matrix.
582,342. Edward L. Chaffin, Helena, Ark. Traveling Artificial Dentures.

MILWAUKEE ODONTOLOGICAL SOCIETY.

This society held its first regular monthly meeting April 6, 1897. Dr. A. Holbrook read a paper on cataphoresis. Those who attended were Drs. Holbrook, R. G. Richter, W. C. Wendell, W. H Carson, C. H. Richter, C. L. Babcock, L. R. Esau, E. A. Geilfuss, A. T. Holbrook, L. J. Stephen, J. T. Stuart and H. B. Wiborg. The society is organized for purposes of scientific investigation of subjects in medicine, dentistry and collateral sciences. Meetings are to be held once a month and will be preceded by a dinner, after which papers will be read and discussed. The membership is limited to fifteen. The officers are: President, Dr. Arthur Holbrook; Vice-President, Dr. R. G. Richter; Secretary and Treasurer, Dr. H. B. Wiborg; Curator and Librarian, Dr. J. S. Batchelor; Board of Censors, Drs. W. C. Wendell, W. H. Carson and E. A. Geilfuss.

PACIFIC COAST DENTAL CONGRESS.

In accordance with resolutions adopted at the Midwinter Fair Dental Congress, another such congress will be held in San Francisco, beginning Tuesday, Aug. 17, 1897, and continuing four days.

The management of the congress is vested in a general committee, consisting of representatives from the Midwinter Fair Dental Congress, and from all other dental organizations on the coast. This general committee has organized and appointed various sub-committees, so that each part of the work will be in the hands of worthy and energetic men.

The president of each dental organization entitled to representation will be an honorary vice-president of the congress. Each dental society of not less than ten members adopting the code of ethics of the American Dental Association, each recognized dental college faculty, and each board of dental examiners on the coast may elect one member for the general committee for each twenty members of said society, or fraction thereof. Dental societies, faculties or state boards not yet represented on this committee will please send names of delegates to the secretary, so that representation may be as complete as possible.

Membership. Any legal or reputable dentist within the jurisdiction of the congress, upon approval of the membership committee, may become an active member of the congress. The membership fee will be five dollars, payable at the opening of the congress. Application blanks will be furnished by the chairman of the membership committee.

Members of the profession wishing to present papers or give clinics will please communicate with the chairman of the program or clinic committee. All papers or duplicates must be in the hands of the program committee at least two weeks before the opening of the congress, so that those appointed to open discussions may have an opportunity to prepare for the same.

The transportation committee expects to make arrangements with railroad and steamship lines for reduced rates.

It is hoped that this will be a larger meeting than ever held on the coast, that every dentist here will be present, and that many will be attracted from the east. A cordial invitation is extended to all honorable members of the profession to take part in this congress. Let every man urge his neighbor to come and make it a grand success.

For the General Committee.

C. L. GODDARD, Chairman. 406 Sutter St., S. F.

R. W. MEEK, Secretary. 1169 Bdw'y, Oakland.

News Summary.

As we go to press we learn that Dr. L. C. Ingersoll, of Keokuk, Iowa, is dead.

DROWNED IN THE RAPIDS.—Dr. John Gentles, a prominent dentist of Montreal, Can., was drowned May 24 in the Cedar rapids of the Rouge river while on a fishing expedition.

AN ATTRACTIVE FEATURE of the meeting at Peoria was the new drink—"Kola Cardinette" with an egg in it—introduced by Mr. Stephen Hexter, the agent for Borolyptol. In fact, it proved so attractive that on two mornings he was roused at 6 a. m. by calls for it.

FAILURE OF ROCHESTER DENTAL MFG. CO.—A receiver was appointed May 8 for the Rochester Dental Manufacturing Co., located at Rochester, N. Y. The capital stock was $30,000; obligations, $10,000. This company also published the Odontographic Dental Journal.

SYPHILITIC SORES DUE TO DENTISTS.—In the *Buffalo Medical Journal* for April, Dr. A. E. Diehl says that a very large percentage of cephalic syphilitic sores occur on persons who are innocent, and that those on the gums are generally due to unclean instruments employed by dentists.

QUEER, ISN'T IT?—It seems strange, after all that has been said lately about not giving proper credit for articles taken from other journals, that one of the oldest dental journals in the country, the *Dental Register*, should be guilty of this practice. In the May, 1896, number of the *Register* appears an article on "Removal of Deposits upon Teeth," by Dr. I. A. Freeman, of Chicago. This article, and the discussion as taken down by the DIGEST'S reporter, is copied from the March, 1896, number of the DIGEST, yet not a word of credit is given to this journal. Such a lack of editorial courtesy is deplorable.

TO PREVENT THE CLOUDING OF LARYNGOSCOPES.—An ingenious device to prevent the clouding of dental mirrors, which is, of course, equally applicable to the mirrors used in nose and throat work, has been made known by an English dentist, Mr. George Wallis. This consists simply in smearing the surface of the mirror with soap and then polishing it with a dry cloth. If this is done, the troublesome warming of the laryngoscope over a lamp is entirely unnecessary. This method has long been used by housewives for polishing mirrors, but we do not know of it ever having been employed by laryngologists.—*Medical Record.*

TO RETARD THE SETTING OF PLASTER OF PARIS.—When, for some reason in making plaster casts or bandages it becomes desirable to retard the setting of the plaster magma, this may be accomplished by adding to the water powdered althæa root in the proportion of 2 to 4 per cent. When dry, such casts may be sawed, filed and turned. An addition of 8 per cent of althæa retards setting for a full hour, and the mass may be kneaded, rolled

and otherwise shaped. The addition of a very little alum or ferric chlorid produces a very bad cast. Good plaster should not set in less than three minutes.—*Western Druggist.*

EXECUTION BY GAS.—Some time ago the Allegheny County (Pa.) Medical Society appointed a committee to make an exhaustive investigation of the present methods of executing condemned criminals, and to recommend a substitute for hanging or killing by electricity. The committee has now concluded its investigations, and will recommend that gas be substituted for the rope and electric chair. It is claimed that condemned prisoners could be put to death by this agent painlessly during sleep. It is proposed that the society draft a bill for presentation to the Pennsylvania legislature this winter providing for the change.—*Medical Record.*

WILL BENEFIT DENTISTS.—The liability of employers for damages to workmen injured while in their employ is likely to benefit dentists. The exposure of a tooth in which there is the slightest decay of the enamel to the fumes of phosphorus means the death of the tooth. Not long since an employe of a match company lost his teeth, then died; and his widow received a large sum from the company. Immediately another match company called in a dentist to inspect the teeth of its employes. It was found that out of 200 young women 60 had defective teeth, and the company ordered them to a dentist, or to go out of the company's employ.—*National Recorder.*

CIGARETTES.—An analysis at the Department of Agriculture showed: Ash 13.00, water 13.00, ammonia .05, nicotin 1.20, oils and fats 5.00, fiber 6.00, sugar starch 50.00, pretreate matter 12.50. No opium or arsenic was found after analyzing samples of all the common native brands. The opponents should confine their charges to the injurious effect of the nicotin upon the nervous system and upon the heart. It disturbs the regular systole and diastole of the heart and changes the beat to a muffled flutter. After the cerebral exhilaration and exaltation produced by smoking, come with the lapse of hours irritating, debilitating or soporific effects, which give way under exhilaration of another smoke, but persist unpleasantly unless treatment is granted. A body subject to such alternations cannot stand during twenty-five years what it could have if freed from them.—*Amer. Micros. Jour.*

INFILTRATION ANESTHESIA.—The fluid consists of a very dilute solution of cocain and morphin, with a small portion of chlorid of sodium. The needle of the syringe is introduced at a point in the area which it is desired to render anesthetic, and keeping it parallel with the surface is pushed on until the eye is hidden. A few drops of the fluid are then injected, and a wheal is instantly produced which is anesthetic. The needle point is then withdrawn and reinserted within the wheal in the line of the proposed incision, and the process continued until the whole area that it is desired to anesthetize has been rendered insensitive. If the operation be a simple skin incision, as the opening of an abscess, this is all that is necessary; but if a small tumor is to be removed it will be necessary to infiltrate the tissues under the skin after this has been incised. In minor operations it is very successful. Its safety is beyond question.—*Fife.*

INVENTOR OF RUBBER PLATES.—William Willshire Riley, who died April 8, near Middletown, Conn., aged 81 years, was often spoken of as the inventor of india-rubber plates for artificial teeth. United States patent No. 8,533 was granted to him on November 18, 1851, for "attaching porcelain teeth to gum plates," and his invention came into such general use as to yield a liberal income from royalties. Mr. Riley obtained patents for several other inventions, not related to rubber, which also proved successful and profitable. The deceased was the son of James Riley, who, born on a farm near Middletown, became a famous sailing master. The most notable adventure of the latter is recorded in a bulky volume published in London in 1817, under the title:

"Loss of the American Brig 'Commerce,' wrecked on the Western Coast of Africa in the month of August, 1815; together with an Account of Timbuctoo, and of the Hitherto Undiscovered Country of Wassanah." By James Riley, late Captain and Supercargo.—*India-Rubber World.*

SALIVA A MICROBE KILLER.—It has long been known that secretions of the mucous membrane, especially saliva, possess antiseptic properties under certain circumstances, which explains the reason why the germs which enter daily and hourly through the mouth do not reach a harmful development, but Edinger has now found the active material in potassium rhodanate, which is present in saliva. Potassium rhodanate is a compound of sulfur, cyanogen and potassium, and is, in large quantities, narcotically poisonous to warm blooded animals; it is, like other rhodanates, fatal to bacilli. It is said that quinolin rhodanate, in a solution of three parts to the thousand, will kill the cholera bacillus in a minute, and in a solution of three times this strength, will kill the diphtheria bacillus in the same time. It was found by further researches that this rhodanate has the effect of carbolic acid and of corrosive sublimate, and at the same time is harmless to man.

Rhodanate is the same thing as sulpho-cyanate, a much better word because it explains itself, and is not liable to be confounded with the derivatives of rhodium.—*Popular Science News.*

IRRUPTION OF TEETH INTO THE NOSE.—In the *New York Medical Journal* for December 26 Dr. Alexander McCoy publishes a series of cases illustrating the irruption of the teeth into the nasal cavities. This painful and fortunately rare condition, he observes, is attributable, as a rule, either to abnormal development with rotation of the dental germ—the enamel growing upward instead of downward—or to extra-follicular development. A case originating in traumatic displacement of the normally irrupted tooth is also recorded. As a rule, the floor of the nasal passage is the seat of the invasion, the enameled crown presenting, though extra-follicular irruption at a higher point is also recorded. As might be expected, the offender is usually a front tooth, incisor or cuspid, but others as far back as the third molar have been found thus displaced. The clinical interest attaching to cases of this kind is largely that of secondary disturbances which comprise local necrosis, with suppuration consequent on the boring action of a hard body traveling through previously-formed bone, otitis, and even laryngeal spasm. The journey performed by such erratic teeth is often not short or rapid. In one case, as read by the light of symptoms, a third molar appears to have made its way during a period of thirty years through the alveolus into antrum of Highmore, and thence by ulcerative inflammation through the lateral nasal wall and inferior turbinated bone on to the nasal floor, whence it was ejected.

TESTS OF CREDE'S SILVER GAUZE AND SALTS AS ANTISEPTICS.—The *Cbl. f. Chir.* of January 23 contains the reports of three scientists who have been experimenting with silver to determine its value in antisepsis. The results fail to confirm Crede's experiences. Zajontschowsky states that the gauze is not sterile; that it does prevent the development of bacteria to a limited extent, but is not bactericidal at all, and that much of the effect Crede ascribes to it is due to the absorptive power of the gauze, whether impregnated with silver or not. Iodoform gauze kept in sublimate solution, 1 to 2,000, as is used in his service, is more effective than the silver gauze. Meyer of Zurich also states that in his numerous and careful tests the staph. pyog. aur. were destroyed in an itrol solution (1 to 4,000) only after forty-five minutes, and in an actol solution (1 to 2,000) after thirty minutes. Albumin in the silver salt solution retards the bactericidal effect. Anthrax spores were still growing after five to seven days in a saturated itrol solution and after three days in an actol solution (1 to 1,000). Silver salts added to the bouillon prevented the development of staph. and pyocy., but anthrax spores continued to grow in serum to which actol had been added (1 to 10,000). In regard

to their effect in preventing the development of bacteria in albuminous media, silver salts approach very closely to sublimate, but in aqueous solutions sublimate is a far more powerful antiseptic than the former. Other tests by Brunner show that the effect of the silver is more decided and rapid as the bacteria are less virulent.

Obituary.

DR. JOHN C. STOREY.

Died on Wednesday, March 17, 1897, at 11:30 p. m., John C. Storey, M.D., D.D.S., aged 61.

It is with great sorrow that we announce to the readers of the *Journal* the death of our much beloved brother, Dr. John C. Storey, editor of the *Texas Dental Journal*, who was sincerely admired and reverenced by the profession in the State and entire South. He was a man of sterling worth, possessed of a tender, kindly heart, a fine mind well stored with useful knowledge, which had ever been freely given to the profession for its use and elevation. His gifted mind has been recognized throughout the United States and his writings read with great benefit to all. He loved his profession and all who were connected with it who followed it legitimately, disliking the "quack" as bitterly as he loved the true and honest.

Dr. Storey was born in Green county, Alabama, in 1836, and his father, Dr. John C. Storey, was one of the pioneers of that State. He was graduated from the Atlanta Medical College in 1857, and practiced his profession in Green county from 1857 to 1860, and then removed to Louisiana. At the beginning of the war he enlisted in the Nineteenth Louisiana infantry, and in 1862 was discharged on account of ill-health. He afterwards re-enlisted as assistant surgeon, and from this time to the close of the war he was busily engaged in caring for the sick and wounded. At the close of the war he married Miss Wiley, daughter of Rev. Dr. E. E. Wiley, of Emery, Va. Four children were born of this union—John E., Clarence L., Virginia E., and Theodore J. Mrs. Storey died June 27, 1891, and her remains were interred in Trinity Cemetery. In 1867 Dr. Storey entered the Baltimore College of Dental Surgery and was graduated in 1869. In 1875 he came to Dallas and has resided here continuously since that time. He was a member of the Southern Dental Association and of the Texas Dental Association, and had served as president of each of these organizations. Dr. Storey was a member of the Presbyterian Church, having joined that denomination almost thirty years ago. He was also a member of Camp Sterling Price, United Confederate Veterans.

The funeral services were conducted by his pastor, the Rev. Dr. W. M. Anderson, in the First Presbyterian Church, at 11 o'clock Saturday morning, March 20. The church was filled with friends and relatives. The many tributes of love and respect paid to the man by his pastor found response in the hearts of his loving friends there assembled to pay their last respects to him with whom they had worshipped so many years, as members of the same body. The floral emblems were many and beautiful. The interment was at Greenwood (Trinity) Cemetery, where he was laid by the side of the wife of his youth who preceded him to the land beyond five years ago. The obsequies were in charge of Camp Sterling Price, the members of which attended in a body to do honor to their dead comrade. Judge E. G. Bower and Rev. W. L. Lowrance conducted the burial ceremony.

The pallbearers were: Drs. Thruston and Lane of the Dallas Medical Association, Drs. Westerfield and Fife of the Texas Dental Association, and John J. Conroy and Major Wortham of Camp Sterling Price.

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"The combination I am now using as a local obtundent yields good results. I use sterilized water to make the solution, and, to prevent possible decomposition, make daily or as needed for use. The formula I use is as follows:

℞ Cocaine.....gr. 1-2
Sulphate of Morphine.....gr. 1-8
Sulphate of Atropine.....gr. 1-200
Sterilized water.....gtts. xxx
Mix and inject hypoder. gtts. v to xv.

"For convenience I have had the Cocaine, Morphine and Atropine made into soluble tablets by Parke, Davis & Co., of Detroit, and in this way solutions of any strength desired may be quickly and accurately made with little or no inconvenience. As a solvent I use distilled water containing from 8 to 10 per cent. Euthymol to keep it sterile. If desired to make a 2-per-cent. solution all that is necessary is to dissolve one tablet in 25 minims of water; a 1-per-cent. solution can be made by dissolving one tablet in twice this quantity of water, or 50 minims. A 4-per-cent. solution can be made either by reducing the water one-half or adding another tablet to the 25 minims, etc."

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